

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 2,5 H3
Edition : 15.04.91
Replaces : 17.02.89
Test oil : ISO-4113

Combination no. : 0 400 075 951

Injection pump
Pump designation : PES5M55C32ORS170
EP type number : 0 410 055 977
Governor
Governor design. : RSF340/2300M60-20
Governor no. : 0 420 021 111

Customer spec. information
Customer : MB-PKW

Engine : OM602-ECF

1st version kW : 66.0

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 469 990 351

Inlet press., bar : 1.00

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 20.00...22.00

Firing order : 1- 2- 4- 5- 3

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Phasing : 0-72-144-216-288

Tolerance + - ° : 0.00 (1.00)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.30...12.40

Del.quantity cm3/ : 3.2...3.3

100 s: (3.1...3.4)

Spread cm3 : 0.2

100 s: (0.3)

2nd speed rpm : 315.0

Rack travel in mm : 6.5...6.7

Del.quantity cm3/ : 0.5...0.6

100 s: (0.4...0.9)

Spread cm3 : 0.1

100 s: (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1100

Del.quantity : 32.0...33.0

1000 : (31.0...34.0)

Spread cm3 : 2.50

1000 : (3.00)

RATED SPEED

1st version

Control lever

position degrees: 50...0

3rd rack travel in: 8,5...8,9

Speed rpm : 2500

4th rack travel in: 2950

Speed rpm : 0.00...1.00

SET IDLE CONTROL LEVER

POSITION

Speed rpm : 1000

Rack travel in mm : 1,2...1,3

LOW IDLE 1

Control lever

position degrees: 12...16

Setting point w/out bumper spring

Testing:

```
Speed          rpm      : 220
Minimum rack travel: 9.50
Speed          rpm      : 315
Rack travel in mm : 6.50...6.70
Rack travel in mm : 2.00
Speed          rpm      : 660...760
Speed          rpm      : 1000
Maximum rack travel: 1.30
```

SET IDLE AUXILIARY SPRING

Speed rpm : 380
Rack travel in mm : 5,4...5,6
: (5,3...5,7)

TORQUE CONTROL

```

Torque control curve - 1st version
1st speed   rpm   : 1000
  Rack travel in m: 12.30...12.40
2nd speed   rpm   : 1800
  Rack travel in m: 11.70...11.90
3rd speed   rpm   : 2200
  Rack travel in m: 11.40...11.60

```

Aneroid/Altitude Compensator Test

1st version

```
Setting
Speed      rpm      : 1000
Pressure   hPa      : 950
Rack travel mm    : 0.00...0.20
```

Measurement

Speed 1/min : 1000

```
1st pressure hPa : 900
  Rack travel in m: 0.50...0.70
2nd pressure hPa : 750
  Rack travel in m: 1.80...2.20
```

FUEL DELIVERY CHARACTERISTICS

1st version

```

Aneroid pressure h: 1100
Speed rpm : 1800
Del.quantity cm3/ : 34.0...35.5
1000 s: (33.0...36.5)
Spread cm3 : 2.50
1000 s: (3.0)
Aneroid pressure h: 1100
Speed rpm : 2200
Del.quantity cm3/ : 34.0...36.0
1000 s: (33.0...37.0)

```

Spread cm³ : 2.50
 1000 s: (3.00)

STARTING FUEL DELIVERY

```
Speed          rpm      : 100
Del.quantity   cm3/     : 52.0...0.0
                1000 s : (52.0...0.0)
Rack travel    in mm    : 20.10...0.00
```

HIGH IDLE

```

1st version
Aneroid pressure h: 1100
Speed          rpm   : 2500
Rack travel in mm : 8.50...8.90
Del.quantity cm3/   : 22.0...26.0
                  1000 s: (21.0...27.0)
Spread         cm3   : 2.50
                  1000 s: (3.00)

```

LOW IDLE

```
Speed      rpm      : 315
Rack travel mm : 6.50...6.70
Del.quantity cm3/ : 5.0...6.0
            1000 s : (4.5...9.0)
Spread     cm3      : 1.00
            1000 s : (1.50)
```

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

```
Control lever at idle stop
Speed      rpm      : 340
Rack travel in mm : (12,4...13,8)
Del.quantity cm3/  : -
              1000 s: (28,0...36,0)
```

```
Current A      : 1,8
Control lever at full-load stop
Speed          : 2950 rpm
Rack travel in mm : 0,0...1,0
Current
```

short-duration A : 3,0

Starting test

Speed rpm : 100
Del.quantity cm3/ : -
min. 1000 s: 52,0 / 1,8A

Remarks:

Pin projection = 16.60...16.70 mm

Sliding sleeve pre-travel = 6.5 mm

CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF

-Control-lever position 49° , max.
0.2 mm control-rod travel deduction
allowable after switchover point (of
starting cam) up to 1000 1/min.
Control-lever position 46.5° ,
control-rod travel deduction must be
greater than 0.2 mm after switchover
point (of starting cam).

TESTING PNEUMATIC SHUTOFF DEVICE

-Control lever at idle stop.
With $n = 315$ 1/min. and $p_u = 450$ mbar,
control rod must move quickly to
control-rod travel = 0 mm

Start-of-delivery sensor system:
adjustment and blocking with device
 $KDEP\ 1077 = 19.3^\circ \dots 19.7^\circ$
($19.2^\circ \dots 19.8^\circ$) angular displacement of
cam following start of delivery of
cylinder no. 1.
Difference in start of delivery between
max. and min. value = max. 1° angular
displacement of cam

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 i 6
Edition : 28.03.91
Replaces : 29.5.90
Test oil : ISO-4113

Combination no. : 0 400 676 182

Injection pump
Pump designation : PE6A90D410RS2524
EP type number : 0 410 696 179
Governor
Governor design. : RSV250...750A7C2201L
Governor no. : 0 420 232 444

Customer-spec. information
Customer : DAF

Engine : DH 825

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.30...2.40
: (2.25...2.45)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
& maximum rack tra: 21.00
Difference ° CS : 4.50...5.50

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 9.70...9.80

Del.quantity cm3/ : 8.3...8.4

100 s: (8.1...8.6)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 250.0

Rack travel in mm : 6.0...6.2

Del.quantity cm3/ : 0.7...1.3

100 s: (0.5...1.5)

Spread cm3 : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 83.0...84.0

1000 : (81.0...86.0)

Spread cm3 : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 91...99

Testing:

1st rack travel in: 8.70

Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 780...795
4th rack travel in: 950
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever

position degrees: 66...74

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.1

Speed rpm : 250

Rack travel in mm : 6.00...6.20

Rack travel in mm : 2.00

Speed rpm : 250...310

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.70

Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.00...6.20

Del.quantity cm³/ : 7.0...13.0

1000 s: (5.0...15.0)

Spread cm³ : 2.50

1000 s: (4.50)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 6,1 t
 Edition : 19.03.51
 Replaces : 28.11.88
 Test oil : ISO-4113
 Combination no. : 0 400 833 037
 Injection pump
 Pump designation : PES6A85D41J/3RS2761
 EP type number : 0 410 886 895
 Governor
 Governor design. : RQ300...1250AB935DL
 Governor no. : 0 420 202 267

Customer-spec. information
 Customer : KHD

Engine : BF6 L 913T

1st version kW : 96.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00

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Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 7.0...7.1

100 s: (6.8...7.3)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del.quantity cm³/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 750

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 70.5...71.5

1000 : (68.5...73.5)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 750

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.70

Speed rpm : 1295...1310

2nd rack travel in: 4.00

Speed rpm : 1355...1385

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300
Rack travel in mm : 6.6

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.50...6.70
Rack travel in mm : 2.00
Speed rpm : 530...570

TORQUE CONTROL

Dimension a mm : 0.45
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 10.70...10.80
2nd speed rpm : 750
Rack travel in m: 11.70...11.90
3rd speed rpm : 910
Rack travel in m: 11.60...11.80
4th speed rpm : 1030
Rack travel in m: 11.10...11.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm3/ : 66.5...69.5
1000 s: (64.0...72.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1295...1310

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 110.0...120.0
1000 s: (107.0...123.0)
Rack travel in mm : 17.00...17.40

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 j
 Edition : 19.03.91
 Replaces : 1.2.91
 Test oil : ISO-4113
 Combination no. : 0 400 844 095
 Injection pump
 Pump designation : PES4A95D410RS2809
 EP type number : 0 410 894 993
 Governor
 Governor design. : RQV300...1400AB1065-23L
 Governor no. : 0 420 212 227

Customer spec. information
 Customer : MERCEDES-BENZ

Engine : OM 364

1st version kW : 65.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.90...10.00

Del.quantity cm3/ : 5.8...6.0

100 s: (5.6...6.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 9.1...9.3

Del.quantity cm3/ : 0.8...1.2

100 s: (0.5...1.4)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30...2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1450

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 58.0...60.0

1000 : (56.0...62.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 111...119

Testing:
1st rack travel in: 8.90
Speed rpm : 1450...1460
2nd rack travel in: 4.00
Speed rpm : 1535...1565
4th rack travel in: 1670
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 73...81

Testing:
Speed rpm : 100
Minimum rack travel: 10.50
Speed rpm : 300
Rack travel in mm : 9.10...9.30

CONSTANT REGULATION
Speed rpm : 500...650

TORQUE CONTROL
Dimension a mm : 1.50
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 9.90...10.00
2nd speed rpm : 400
Rack travel in m: 11.40...11.70
3rd speed rpm : 650
Rack travel in m: 10.90...11.10
4th speed rpm : 900
Rack travel in m: 10.40...10.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 400
Del.quantity cm³/ : 48.0...51.0
1000 s: (45.5...53.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.90
Speed rpm : 1450...1460

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 14.80...15.20

Remarks:

Set shutoff stop to contact at
3.0...3.5 mm control-rod travel.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 j 1
Edition : 19.03.91
Replaces : 1.2.90
Test oil : ISO-4113

Combination no. : 0 400 844 096

Injection pump
Pump designation : PES4A95D410KS2809
EP type number : 0 410 894 993
Governor
Governor design. : RQV300...1400AB1065-23L
Governor no. : 0 420 212 227

Customer spec. information
Customer : MERCEDES-BENZ

Engine : OM 364

1st version kW : 65.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
: (3.15...3.35)

Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.90...10.00

Del. quantity cm3/ : 5.8...6.0

100 s: (5.6...6.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 9.1...9.3

Del. quantity cm3/ : 0.8...1.2

100 s: (0.5...1.4)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30...2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1450

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del. quantity : 58.0...60.0

1000 : (56.0...62.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 111...119

Testing:
1st rack travel in: 8.90
Speed rpm : 1450...1460
2nd rack travel in: 4.00
Speed rpm : 1535...1565
4th rack travel in: 1670
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 73...81

Testing:
Speed rpm : 100
Minimum rack travel: 10.50
Speed rpm : 300
Rack travel in mm : 9.10...9.30

CONSTANT REGULATION
Speed rpm : 500...650

TORQUE CONTROL
Dimension a mm : 1.50
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 9.90...10.00
2nd speed rpm : 400
Rack travel in m: 11.40...11.70
3rd speed rpm : 650
Rack travel in m: 10.90...11.10
4th speed rpm : 900
Rack travel in m: 10.40...10.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 400
Del.quantity cm³/ : 48.0...51.0
1000 s: (45.5...53.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.90
Speed rpm : 1450...1460

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 14.80...15.20

Remarks:

Set shutoff stop to contact at
3.0...3.5 mm control-rod travel.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 p 4
 Edition : 19.03.91
 Replaces : 1.2.91
 Test oil : ISO-4113
 Combination no. : 0 400 846 585
 Injection pump
 Pump designation : PES6A95D32ORS2693
 EP type number : 0 410 896 914
 Governor
 Governor design. : RQ300/1300AB1253-1R
 Governor no. : 0 420 201 650

Customer spec. information
 Customer : DAF

Engine : NS 133

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness : 6.00X1.50X600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 7.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 11.50...11.60

Del. quantity cm³/ : 7.6...7.7

100 s: (7.4...7.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.7...6.9

Del. quantity cm³/ : 0.7...1.1

100 s: (0.4...1.3)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 800

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 700

Del. quantity : 76.5...77.5

1000 : (74.5...79.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 800

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.50

Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.8

Testing:

Speed rpm : 100
Minimum rack trave: 8.20
Speed rpm : 300
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 540...580

TORQUE CONTROL

Dimension a mm : 0.55
Torque control curve - 1st version
1st speed rpm : 1290
Rack travel in m: 10.50...10.60
2nd speed rpm : 800
Rack travel in m: 11.80...12.40
3rd speed rpm : 950
Rack travel in m: 11.20...11.80
4th speed rpm : 1050
Rack travel in m: 10.70...11.10

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 11.50...11.60

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.10...10.30
2nd pressure hPa : 160
Rack travel in m: 10.70...10.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 1290

Del.quantity cm³/ : 73.0...75.0
1000 s: (70.5...77.5)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 50.5...51.5
1000 s: (48.5...53.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1340...1350

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.70...6.90
Del.quantity cm³/ : 7.0...11.0
1000 s: (4.5...13.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RAB 9,7 e
 Edition : 22.03.91
 Replaces : 14.12.90
 Test oil : ISO-4113
 Combination no. : 0 400 846 588
 Injection pump
 Pump designation : PES6A95D420LS2804
 EP type number : 0 410 896 899
 Governor
 Governor design. : RQ200/1050AB1246-1R
 Governor no. : 0 420 201 652

Customer-spec. information
 Customer : RABA

Engine : D2156 HM6 UT

1st version kW : 162.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.80...1.90
 : (1.75...1.95)
 Rack travel in mm : 9.00...12.00

A14

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.00...12.10

Del.quantity cm3/ : 11.9...12.1

100 s: (11.7...12.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 200.0

Rack travel in mm : 7.2...7.4

Del.quantity cm3/ : 1.1...1.5

100 s: (0.8...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 500

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 700

Del.quantity : 119.0...121.0

1000 : (117.0...123.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 500

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.00

Speed rpm : 1095...1110

2nd rack travel in: 4.00

Speed rpm : 1125...1155

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 200

Rack travel in mm : 6.5

Testing:

Speed rpm : 100

Minimum rack trave: 8.00

Speed rpm : 200

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 300...340

TORQUE CONTROL

Dimension a mm : 0.40

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 12.00...12.10

2nd speed rpm : 415

Rack travel in m: 13.20...13.30

3rd speed rpm : 680

Rack travel in m: 12.80...13.00

4th speed rpm : 835

Rack travel in m: 12.20...12.40

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 700

Rack travel mm : 12.70...12.80

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.70...10.80

2nd pressure hPa : 260

Rack travel in m: 12.50...12.60

3rd pressure hPa : 180

Rack travel in m: 11.10...11.40

START CUT-OUT

Speed 1/min : 140 (160)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 600

Del.quantity cm3/ : 113.0...116.0

1000 s: (110.5...118.5)

Aneroid pressure h: -

Speed rpm : 500

A15

Del.quantity cm3/ : 74.0...76.0
1000 s: (72.0...78.0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 150.0...160.0

1000 s: (147.0...163.0)

Rack travel in mm : 17.50...17.70

Remarks:

:

Set idle stop at 200 min -1 to a
control-rod travel of 6.5 mm

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 j 4
 Edition : 19.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 846 591
 Injection pump
 Pump designation : PES6A95D410RS2797
 EP type number : 0 410 896 900
 Governor
 Governor design. : RQV300...1400AB1065-
 22L
 Governor no. : 0 420 212 226

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366

1st version kW : 97.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness : 6.00X1.50X600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.90...10.00

Del. quantity cm3/ : 5.8...6.0

100 s: (5.6...6.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 9.0...9.2

Del. quantity cm3/ : 0.8...1.2

100 s: (0.5...1.4)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30...2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1450

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del. quantity : 58.0...60.0

1000 : (56.0...62.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 109...117

Testing:
1st rack travel in: 8.90
Speed rpm : 1450...1460
2nd rack travel in: 4.00
Speed rpm : 1545...1575
4th rack travel in: 1670
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 71...79

Testing:
Speed rpm : 100
Minimum rack trave: 10.50
Speed rpm : 300
Rack travel in mm : 9.00...9.20

CONSTANT REGULATION
Speed rpm : 500...650

TORQUE CONTROL
Dimension a mm : 1.40
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 9.90...10.00
2nd speed rpm : 400
Rack travel in m: 11.30...11.60
3rd speed rpm : 650
Rack travel in m: 10.90...11.10
4th speed rpm : 900
Rack travel in m: 10.40...10.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 400
Del.quantity cm3/ : 48.0...51.0
1000 s: (45.5...53.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.90
Speed rpm : 1450...1460

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 14.60...15.00

Remarks:

Set shutoff stop to contact at
3.0...3.5 mm control-rod travel.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 4,1 k 1
Edition : 22.03.91
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 864 088

Injection pump
Pump designation : PES4A85D410/3RS2799
EP type number : 0 410 884 944
Governor
Governor design. : RSV325...1250A2C2253
-2L
Governor no. : 0 420 232 556

Customer-spec. information
Customer : KHD

Engine : BF4L913

1st version kW : 78.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
: (2.45...2.65)

Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250
Rack travel in mm : 12.40...12.50
Del. quantity cm³/ : 8.7...8.8
100 s: (8.5...9.0)
Spread cm³ : 0.3
100 s: (0.5)

2nd speed rpm : 400.0
Rack travel in mm : 7.8...8.0
Del. quantity cm³/ : 1.2...1.8
100 s: (1.0...2.0)
Spread cm³ : 0.2
100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1250
Aneroid pressure h: 700
Del. quantity : 87.5...88.5
1000 : (85.5...90.5)
Spread cm³ : 3.00
1000 : (5.00)

RATED SPEED

1st version
Control lever
position degrees: 95...103

Testing:
1st rack travel in: 11.40
Speed rpm : 1295...1305
2nd rack travel in: 4.00
Speed rpm : 1345...1375

3rd rack travel in: 4.00
Speed rpm : 1375...1405
4th rack travel in: 1540
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 400
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 595...655

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 12.40...12.50
2nd speed rpm : 500
Rack travel in m: 13.10...13.20
3rd speed rpm : 900
Rack travel in m: 12.80...13.10
4th speed rpm : 1000
Rack travel in m: 12.60...12.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 13.10...13.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.60...11.70
2nd pressure hPa : 390
Rack travel in m: 12.50...12.60
3rd pressure hPa : 280
Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm3/ : 88.5...90.5
1000 s: (86.0...93.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/ : 62.0...64.0
1000 s: (60.0...66.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1295...1305

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 115.0...125.0
1000 s: (112.0...128.0)
Rack travel in mm : 17.60...18.00

Remarks:

APPLICATION

Compressor

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 4,1 k 2
 Edition : 19.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 864 089
 Injection pump
 Pump designation : PES4A85D410/3RS2799
 EP type number : 0 410 884 944
 Governor
 Governor design. : RSV325...1075A8C2253
 -3L
 Governor no. : 0 420 232 547

Customer-spec. information
 Customer : KHD

Engine : BF4L913

1st version kW : 70.0
 Rated speed : 2150

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1075

Rack travel in mm : 11.90...12.00

Del.quantity cm3/ : 7.9...8.0

100 s: (7.7...8.2)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 8.2...8.4

Del.quantity cm3/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm3 : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1075

Aneroid pressure h: 1000

Del.quantity : 79.5...80.5

1000 : (77.5...82.5)

Spread cm3 : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control Lever

position degrees: 95...103

Testing:

1st rack travel in: 10.90

Speed rpm : 1115...1125

2nd rack travel in: 4.00

Speed rpm : 1150...1180

4th rack travel in: 1315
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 8.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 325
Rack travel in mm : 8.20...8.40
Rack travel in mm : 2.00
Speed rpm : 350...410

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1075
Rack travel in m: 11.90...12.00
2nd speed rpm : 500
Rack travel in m: 12.40...12.50
4th speed rpm : 860
Rack travel in m: 12.20...12.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.40...12.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.40...11.50
2nd pressure hPa : 330
Rack travel in m: 12.00...12.10
3rd pressure hPa : 250
Rack travel in m: 11.60...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm³/ : 79.5...81.5
1000 s: (77.0...84.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 57.0...59.0
1000 s: (55.0...61.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1115...1125

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...125.0
1000 s: (112.0...128.0)
Rack travel in mm : 18.00...18.40

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 4,1 i 2
 Edition : 19.03.91
 Replaces : 1.3.91
 Test oil : ISO-4113
 Combination no. : 0 400 864 090
 Injection pump
 Pump designation : PES4A85D410/3RS2781
 EP type number : 0 410 884 945
 Governor
 Governor design. : RS325/1250A0C2087-1L
 Governor no. : 0 420 220 012

Customer-spec. information
 Customer : KHD

Engine : F4L912F

1st version kW : 54.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1235

Rack travel in mm : 11.30...11.40

Del.quantity cm3/ : 6.4...6.5

100 s: (6.2...6.7)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 7.9...8.1

Del.quantity cm3/ : 1.0...1.6

100 s: (0.8...1.8)

Spread cm3 : 0.3

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1235

Del.quantity : 64.0...65.0

1000 : (62.0...67.0)

Spread cm3 : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Testing:

1st rack travel in: 10.40

Speed rpm : 1275...1285

2nd rack travel in: 4.00

Speed rpm : 1330...1360

4th rack travel in: 1490

Speed rpm : 0.30...1.40

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 325

Rack travel in mm : 6.0

Testing:

Speed rpm : 100

Minimum rack trave: 19.50

Speed rpm : 325

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 1260...132

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1235

Rack travel in m: 11.30...11.40

2nd speed rpm : 500

Rack travel in m: 11.40...11.60

4th speed rpm : 1000

Rack travel in m: 11.30...11.50

5th speed rpm : 360

Rack travel in m: 13.00...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/ : 55.0...57.0

1000 s: (52.5...59.5)

Speed rpm : 1000

Del.quantity cm3/ : 62.0...64.0

1000 s: (59.5...66.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40

Speed rpm : 1275...1285

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 110.0...120.0

1000 s: (107.0...123.0)

Rack travel in mm : 19.50...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a68
Edition : 10.04.91
Replaces : 1.2.90
Test oil : ISO-4113

Combination no. : 0 400 866 145

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV400...1100AOC2190
-35R
Governor no. : 0 420 233 242

Customer-spec. information
Customer : C.D.C.

Engine : 6 C 8.3 ltr.

1st version kW : 112.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.30...11.40

Del.quantity cm3/ : 10.5...10.7

100 s: (10.3...10.9)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 400.0
Rack travel in mm : 5.5...5.7
Del.quantity cm3/ : 1.6...2.0
100 s: (1.3...2.2)
Spread cm3 : 0.6
100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del.quantity : 105.5...107.5
1000 : (103.5...109.5)
Spread cm3 : 4.00
1000 : (6.50)

RATED SPEED

1st version
Control lever
position degrees: 42...50

Testing:

1st rack travel in: 10.30
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1225
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.50...5.70

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.50...5.70
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3915955

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 p
Edition : 10.04.91
Replaces : 5.10.90
Test oil : ISO-4113

Combination no. : 0 400 866 153

Injection pump
Pump designation : PES6A100D320/3RS2763
EP type number : 0 410 806 006
Governor
Governor design. : RSV400...950A0C2238-1R
Governor no. : 0 420 233 255

Customer-spec. information
Customer : C.D.C.

Engine : 6CT 8.3

1st version kW : 145.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness : 6.00X2.00X600
x Length mm

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 12.40...12.50

Del.quantity cm³/ : 12.7...12.9
100 s: (12.6...13.1)

Spread cm³ : 0.4
100 s: (0.6)

2nd speed rpm : 400.0
Rack travel in mm : 6.8...7.0
Del.quantity cm³/ : 3.1...3.5
100 s: (2.9...3.7)
Spread cm³ : 0.6
100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 950
Aneroid pressure h: 900
Del.quantity : 127.0...129.0
1000 : (126.0...131.0)
Spread cm³ : 4.00
1000 : (6.50)

RATED SPEED

1st version
Control lever
position degrees: 36...44

Testing:

1st rack travel in: 11.40
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1055...1065
3rd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1150
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 6.80...7.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.40...12.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.80
2nd pressure hPa : 220
Rack travel in m: 11.10...11.20
3rd pressure hPa : 340
Rack travel in m: 11.90...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 89.5...93.5
1000 s: (87.5...95.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 990...1000

A27

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.80...7.00
Del.quantity cm³/ : 31.5...35.5
1000 s: (29.5...37.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3917577

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a77
Edition : 10.04.91
Replaces : 8.6.90
Test oil : ISO-4113

Combination no. : 0 400 866 160

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV470...1100AOC2190
-48R
Governor no. : 0 420 233 262

Customer-spec. information
Customer : C.D.C.

Engine : 6CT830

1st version kW : 150.6
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.10...12.20

Del.quantity cm³/ : 11.5...11.7

100 s: (11.3...11.9)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 470.0
Rack travel in mm : 5.7...5.9
Del.quantity cm³/ : 1.6...2.0
100 s: (1.4...2.3)
Spread cm³ : 0.6
100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del.quantity : 115.0...117.0
1000 : (113.0...119.0)
Spread cm³ : 4.00
1000 : (6.50)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:

1st rack travel in: 11.10
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1235...1245
3rd rack travel in: 4.00
Speed rpm : 1235...1265
4th rack travel in: 1325
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 470
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 470
Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.10...12.20
2nd speed rpm : 750
Rack travel in m: 13.00...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 128.0...132.0
1000 s: (126.0...134.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 470
Rack travel in mm : 5.70...5.90
Del. quantity cm³/ : 16.5...20.5
1000 s: (14.0...23.0)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3917962

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VAL 3,3 b
 Edition : 19.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 873 040
 Injection pump
 Pump designation : PES3A950320RS2810
 EP type number : 0 410 893 997
 Governor
 Governor design. : RSV375...1175A2C2178
 -10R
 Governor no. : 0 420 233 281

Customer-spec. information
 Customer : VALMET

Engine : 320 DS

1st version kW : 55.0
 Rated speed : 2350

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 2- 3

Phasing : 0-120-240

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 4.50...5.50

BASIC SETTING

1st speed rpm : 1175

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 8.5...8.7

100 s: (8.3...8.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 375.0

Rack travel in mm : 4.2...4.4

Del.quantity cm³/ : 0.8...1.5

100 s: (0.5...1.7)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1175

Del.quantity : 85.5...87.5

1000 : (83.5...89.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 97...106

Testing:

1st rack travel in: 9.70
Speed rpm : 1215...1225
2nd rack travel in: 4.00
Speed rpm : 1270...1300
3rd rack travel in: 4.00
Speed rpm : 1275...1305
4th rack travel in: 1440
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 71...79
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 3.8

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 375
Rack travel in mm : 3.70...3.90
Rack travel in mm : 2.00
Speed rpm : 420...480

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1175
Rack travel in m: 10.70...10.80
2nd speed rpm : 500
Rack travel in m: 11.20...11.30
4th speed rpm : 990
Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 74.5...77.5
1000 s: (72.0...80.0)
Spread cm³ : -
1000 s: (7.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1215...1225

STARTING FUEL DELIVERY

Speed rpm : 100

B03

Del.quantity cm³/ : 200.0...210.0
1000 s: (197.0...213.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 375
Rack travel in mm : 4.20...4.40
Del.quantity cm³/ : 8.0...15.0
1000 s: (5.5...17.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RAB 9,7 d 2
 Edition : 22.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 304
 Injection pump
 Pump designation : PES6A95D410RS2108R
 EP type number : 0 410 896 927
 Governor
 Governor design. : RSV550...1100A1C607L
 Governor no. : 0 420 232 380

Customer-spec. information
 Customer : RABA

Engine : D2356 HM6

1st version kW : 150.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.70...1.80
 : (1.65...1.85)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1080

Rack travel in mm : 12.70...12.80

Del.quantity cm³/ : 11.4...11.6

100 s: (11.2...11.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 550.0

Rack travel in mm : 6.4...6.6

Del.quantity cm³/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1080

Del.quantity : 114.5...116.5

1000 : (112.5...118.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 11.70

Speed rpm : 1120...1130

2nd rack travel in: 4.00

Speed rpm : 1140...1170

3rd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1330
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 550
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 550
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 625...685
Speed rpm : 725
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1080
Rack travel in m: 12.70...12.80
2nd speed rpm : 400
Rack travel in m: 12.70...12.90
3rd speed rpm : 250
Rack travel in m: 13.90...14.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm3/ : 112.0...115.0
1000 s: (109.5...117.5)
Speed rpm : 500
Del.quantity cm3/ : 0.0...112.0
1000 s: (0.0...114.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1120...1130

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 q 1
Edition : 18.03.91
Replaces : 20.12.90
Test oil : ISO-4113

Combination no. : 0 400 876 375

Injection pump
Pump designation : PES6A95D32ORS2693
EP type number : 0 410 896 914
Governor
Governor design. : RSV300...1300AOC2251
R
Governor no. : 0 420 233 272

Customer-spec. information
Customer : DAF

Engine : NT 116

1st version kW : 119.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 7.50...10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
& maximum rack tra: 21.00
Difference ° CS : 2.50...3.50

B... SETTING

1st speed rpm : 850

Rack travel in mm : 10.80...10.90

Del.quantity cm³/ : 6.1...6.2

100 s: (5.9...6.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm³/ : 0.6...1.0

100 s: (0.3...1.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 61.5...62.5

1000 : (59.5...64.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 101...109

Testing:

1st rack travel in: 9.30
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1390...1420
3rd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1575
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 71...79
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 580...640

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1290
Rack travel in m: 10.30...10.40
2nd speed rpm : 500
Rack travel in m: 11.10...11.20
4th speed rpm : 1050
Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1290
Del. quantity cm³/ : 68.0...70.0
1000 s: (65.5...72.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30
Speed rpm : 1340...1350

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del. quantity cm³/ : 6.0...10.0
1000 s: (3.5...12.5)

Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 r 1
 Edition : 28.03.91
 Replaces : 20.12.90
 Test oil : ISO-4113
 Combination no. : 0 400 876 376
 Injection pump
 Pump designation : PES6A95D32ORS2796
 EP type number : 0 410 896 901
 Governor
 Governor design. : RSV300...1300A0C2248
 -2R
 Governor no. : 0 420 233 274

Customer-spec. information
 Customer : DAF

Engine : NS 156G

1st version kW : 156.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 7.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.80...12.90

Del.quantity cm3/ : 8.4...8.5

100 s: (8.2...8.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm3/ : 0.6...1.0

100 s: (0.3...1.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del.quantity : 84.5...85.5

1000 : (82.5...87.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 101...109

Testing:

1st rack travel in: 11.60
Speed rpm : 1320...1330
2nd rack travel in: 4.00
Speed rpm : 1390...1420
3rd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1570
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 71...79
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 580...640

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1290
Rack travel in m: 12.60...12.70
2nd speed rpm : 500
Rack travel in m: 13.70...13.80
4th speed rpm : 1085
Rack travel in m: 13.10...13.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.80...11.00
2nd pressure hPa : 260
Rack travel in m: 12.30...12.40
3rd pressure hPa : 210
Rack travel in m: 11.20...11.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1290
Del.quantity cm3/ : 87.0...89.0
1000 s: (84.5...91.5)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 44.5...45.5
1000 s: (42.5...47.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.60
Speed rpm : 1320...1330

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 6.0...10.0
1000 s: (3.5...12.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 q 2
 Edition : 28.03.91
 Replaces : 17.9.90
 Test oil : ISO-4113
 Combination no. : 0 400 876 377
 Injection pump
 Pump designation : PES6A95D320RS2693Z
 EP type number : 0 410 896 913
 Governor
 Governor design. : RSV300...1300AOC2248
 -1R
 Governor no. : 0 420 233 273

Customer-spec. information
 Customer : DAF

Engine : NS156

1st version kW : 156.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 7.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.00...12.10

Del.quantity cm3/ : 8.7...8.8

100 s: (8.5...9.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm3/ : 0.6...1.0

100 s: (0.3...1.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 700

Del.quantity : 87.5...88.5

1000 : (85.5...90.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 97...103

Testing:

1st rack travel in: 11.00
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1390...1420
3rd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1575
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 580...640

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 12.00...12.10
2nd speed rpm : 500
Rack travel in m: 12.50...12.60
4th speed rpm : 1015
Rack travel in m: 12.20...12.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 12.00...12.10

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.30...10.50
2nd pressure hPa : 290
Rack travel in m: 11.50...11.60
3rd pressure hPa : 250
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 53.5...54.5
1000 s: (51.5...56.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1340...1350

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm³/ : 6.0...10.0
1000 s: (3.5...12.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 q 3
 Edition : 28.03.91
 Replaces : 20.12.90
 Test oil : ISO-4113
 Combination no. : 0 400 876 378
 Injection pump
 Pump designation : PES6A95D32ORS2693
 EP type number : 0 410 896 914
 Governor
 Governor design. : RSV300...1300AOC2248
 -2R
 Governor no. : 0 420 233 274

Customer-spec. information
 Customer : DAF

Engine : NT 133

1st version kW : 133.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 7.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 11.50...11.60

Del.quantity cm3/ : 7.6...7.7

100 s: (7.4...7.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm3/ : 0.6...1.0

100 s: (0.3...1.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 700

Del.quantity : 76.5...77.5

1000 : (74.5...79.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 103...111

Testing:

1st rack travel in: 9.50
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1390...1420
3rd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1570
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 73...81
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 580...640

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1290
Rack travel in m: 10.50...10.60
2nd speed rpm : 500
Rack travel in m: 11.80...11.90
4th speed rpm : 1070
Rack travel in m: 11.10...11.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 11.50...11.60

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.10...10.30
2nd pressure hPa : 160
Rack travel in m: 10.70...10.80

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700

Speed rpm : 1290
Del.quantity cm3/ : 73.0...75.0
1000 s: (70.5...77.5)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 50.5...51.5
1000 s: (48.5...53.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1340...1350

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 6.0...10.0
1000 s: (3.5...12.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 o 8
 Edition : 28.03.91
 Replaces : 20.12.90
 Test oil : ISO-4113
 Combination no. : 0 400 876 379
 Injection pump
 Pump designation : PES6A95D32ORS2693
 EP type number : 0 410 896 914
 Governor
 Governor design. : RSV300...1300ADC2248
 -3R
 Governor no. : 0 420 233 275

Customer-spec. information
 Customer : DAF

Engine : NT 133

1st version kW : 133.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 7.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 11.50...11.60

Del.quantity cm3/ : 7.6...7.7

100 s: (7.4...7.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm3/ : 0.6...1.0

100 s: (0.3...1.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 700

Del.quantity : 76.5...77.5

1000 : (74.5...79.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 103...111

Testing:

1st rack travel in: 9.50
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1390...1420
3rd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1570
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 73...81
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 580...640

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1290
Rack travel in m: 10.50...10.60
2nd speed rpm : 500
Rack travel in m: 11.80...11.90
4th speed rpm : 1070
Rack travel in m: 11.10...11.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 11.50...11.60

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.10...10.30
2nd pressure hPa : 160
Rack travel in m: 10.70...10.80

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700

Speed rpm : 1290
Del.quantity cm³/ : 73.0...75.0
1000 s: (70.5...77.5)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 50.5...51.5
1000 s: (48.5...53.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1340...1350

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm³/ : 6.0...10.0
1000 s: (3.5...12.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,7 d 6
 Edition : 19.03.91
 Replaces : 7.1.91
 Test oil : ISO-4113

Combination no. : 0 400 876 383

Injection pump
 Pump designation : PES6A100D410RS2762-1
 EP type number : 0 410 806 008
 Governor
 Governor design. : RSV400...1100A2C2204
 -8L
 Governor no. : 0 420 232 551

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076TDW02

1st version kW : 128.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 190...200

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)

Rack travel in mm : 10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.10...11.20

Del.quantity cm3/ : 10.2...10.4
 100 s: (10.0...10.6)

Spread cm3 : 0.4
 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.9...6.1
 Del.quantity cm3/ : 2.2...2.6
 100 s: (2.0...2.8)

Spread cm3 : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 102.0...104.0
 1000 : (100.0...106.0)

Spread cm3 : 4.00
 1000 : (6.50)

RATED SPEED

1st version

Control lever
position degrees: 40...48

Testing:

1st rack travel in: 10.10
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1205
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.40...5.60

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.10...11.20
2nd speed rpm : 700
Rack travel in m: 12.20...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : 124.0...128.0
1000 s: (122.0...130.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 22.0...26.0
1000 s: (20.0...28.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE47356
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 7,1 d
Edition : 22.03.91
Replaces : 16.2.90
Test oil : ISO-4113

Combination no. : 0 401 846 505

Injection pump
Pump designation : PE6P110A320RS483
EP type number : 0 411 816 159
Governor
Governor design. : RQV250...1200PA918
Governor no. : 0 421 813 772

Customer-spec. information
Customer : VOLVO

Engine : TD71F; FQ, FAQ

1st version kW : 162.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ : 12.7...12.9

100 s: (12.4...13.2)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.3...5.5

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.3)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.10...1.30

2nd speed rpm : 380

travel mm : 2.30...2.60

3rd speed rpm : 500

travel mm : 2.90...3.30

4th speed rpm : 1260

travel mm : 7.70...7.90

5th speed rpm : 1400

travel mm : 9.00...9.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1330

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 127.0...129.0

1000 : (124.0...132.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 109...117

Testing:
1st rack travel in: 11.30
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1380...1410
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 56...64

Testing:
Speed rpm : 100
Minimum rack travel: 6.80
Speed rpm : 250
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION
Speed rpm : 250...450

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.30...12.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.20...10.30
2nd pressure hPa : 560
Rack travel in m: 12.00...12.10
3rd pressure hPa : 270
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm³/ : 85.0...88.0
1000 s: (82.0...91.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 170.0...200.0
1000 s: (166.0...204.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.30...5.50
Del. quantity cm³/ : 16.0...20.0
1000 s: (13.0...23.0)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 7,1 d 1
Edition : 28.03.91
Replaces : 5.3.90
Test oil : ISO-4113

Combination no. : 0 401 846 506

Injection pump
Pump designation : PE6P110A320RS483-1
EP type number : 0 411 816 160
Governor
Governor design. : RQV250...1200PA918-1
Governor no. : 0 421 813 773

Customer-spec. information
Customer : VOLVO

Engine : TD71FS

1st version kW : 180.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00

B20

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.10...13.20

Del.quantity cm3/ : 14.2...14.4

100 s: (13.9...14.7)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.3...5.5

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.3)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.10...1.30

2nd speed rpm : 380

travel mm : 2.30...2.60

3rd speed rpm : 500

travel mm : 2.90...3.30

4th speed rpm : 1260

travel mm : 7.70...7.90

5th speed rpm : 1400

travel mm : 9.00...9.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1330

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del.quantity : 142.0...144.0

1000 : (139.0...147.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control Lever
position degrees: 109...117

Testing:
1st rack travel in: 12.10
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1385...1415
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 56...64

Testing:
Speed rpm : 100
Minimum rack travel: 6.80
Speed rpm : 250
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION
Speed rpm : 250...450

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.10...13.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.20...10.40
2nd pressure hPa : 700
Rack travel in m: 12.80...12.90
3rd pressure hPa : 270
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1000
Del.quantity cm³/ : 137.0...143.0
1000 s: (135.0...145.0)
Aneroid pressure h: -
Speed rpm : 700

Del.quantity cm³/ : 85.0...88.0
1000 s: (82.0...91.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.10
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...200.0
1000 s: (166.0...204.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.30...5.50
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.0...23.0)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6m15
 Edition : 01.03.91
 Replaces : 15.11.90
 Test oil : ISO-4113
 Combination no. : 0 401 846 567
 Injection pump
 Pump designation : PE6P100A32ORS384-1
 EP type number : 0 411 806 189
 Governor
 Governor design. : RQ225/1100PA974
 Governor no. : 0 421 801 568

Customer-spec. information
 Customer : DAF

Engine : DKL 1160

1st version kW : 151.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 600
 Rack travel in mm : 11.90...12.00
 Del.quantity cm3/ : 11.0...11.2
 100 s: (10.8...11.4)
 Spread cm3 : 0.3
 100 s: (0.6)

2nd speed rpm : 225.0
 Rack travel in mm : 7.6...7.8
 Del.quantity cm3/ : 1.0...1.4
 100 s: (0.7...1.6)
 Spread cm3 : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 550
 Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Del.quantity : 110.5...112.5
 1000 : (108.5...114.5)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version

Setting point:
 Speed rpm : 550
 Rack travel in mm : 15.8

Testing:
 1st rack travel in: 10.40
 Speed rpm : 1140...1155
 2nd rack travel in: 4.00
 Speed rpm : 1170...1200
 4th rack travel in: 1300
 Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 225

Rack travel in mm : 7.7

Testing:

Speed rpm : 100

Minimum rack travel: 7.90

Speed rpm : 225

Rack travel in mm : 7.60...7.80

Rack travel in mm : 2.00

Speed rpm : 325...365

TORQUE CONTROL

Dimension a mm : 0.60

Torque control curve - 1st version

1st speed rpm : 600

Rack travel in m: 11.90...12.00

2nd speed rpm : 1050

Rack travel in m: 11.30...11.50

3rd speed rpm : 800

Rack travel in m: 11.60...11.80

4th speed rpm : 855

Rack travel in m: 11.40...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1050

Del.quantity cm3/ : 107.0...111.0

1000 s: (104.5...113.5)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40

Speed rpm : 1140...1155

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 185.0...225.0

1000 s: (181.0...229.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 225

Rack travel in mm : 7.60...7.80

Del.quantity cm3/ : 10.0...14.0

1000 s: (7.5...16.5)

Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0q18
 Edition : 28.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 758
 Injection pump
 Pump designation : PE6P110A32ORS3108Z
 EP type number : 0 411 816 728
 Governor
 Governor design. : RQV250...1100PA920
 Governor no. : 0 421 813 777

Customer-spec. information
 Customer : VOLVO

Engine : THD100EB

1st version kW : 160.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.50...10.60

Del.quantity cm3/ : 12.2...12.4

100 s: (11.9...12.7)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.3...5.5

Del.quantity cm3/ : 3.0...3.4

100 s: (2.7...3.6)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.10...1.30

2nd speed rpm : 500

travel mm : 4.10...4.90

3rd speed rpm : 700

travel mm : 6.30...6.70

4th speed rpm : 950

travel mm : 6.30...6.70

5th speed rpm : 1100

travel mm : 7.00...7.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1175

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 750

Del.quantity : 122.0...124.0

1000 : (119.0...127.0)

Spread cm3 : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:

1st rack travel in: 9.50
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1225...1255
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:

Speed rpm : 100
Minimum rack travel: 6.80
Speed rpm : 250
Rack travel in mm : 5.30...5.50
Rack travel in mm : 2.00
Speed rpm : 350...410

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 750
Rack travel mm : 10.50...10.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.60...9.80
2nd pressure hPa : 265
Rack travel in m: 9.90...10.00
3rd pressure hPa : 310
Rack travel in m: 10.20...10.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 105.5...108.5
1000 s: (103.0...111.0)

BREAKAWAY

B25

1st version
1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 160.0...190.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.30...5.50
Del.quantity cm3/ : 30.0...34.0
1000 s: (27.5...36.5)
Spread cm3 : 3.00
1000 s: (6.00)

Remarks:

:
On activation of the starting solenoid,
the start position must be reached.

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0q19
 Edition : 28.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 759
 Injection pump
 Pump designation : PE6P110A320RS3108Y
 EP type number : 0 411 816 729
 Governor
 Governor design. : RQV250...1100PA920-1
 Governor no. : 0 421 815 778

Customer-spec. information
 Customer : VOLVO

Engine : THD100EC

1st version kW : 180.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 11.10...11.20
 Del.quantity cm3/ : 13.8...14.0
 100 s: (13.5...14.3)

Spread cm3 : 0.4
 100 s: (0.7)

2nd speed rpm : 250.0
 Rack travel in mm : 5.2...5.4
 Del.quantity cm3/ : 3.0...3.4
 100 s: (2.7...3.6)
 Spread cm3 : 0.3
 100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.10...1.30
 2nd speed rpm : 500
 travel mm : 4.10...4.90
 3rd speed rpm : 700
 travel mm : 6.30...6.70
 4th speed rpm : 950
 travel mm : 6.30...6.70
 5th speed rpm : 1100
 travel mm : 7.00...7.50

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1175
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 900
 Del.quantity : 138.0...140.0
 1000 : (135.0...143.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:
1st rack travel in: 10.10
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1225...1255
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16

Testing:
Speed rpm : 100
Minimum rack travel: 6.70
Speed rpm : 250
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION
Speed rpm : 250...425

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 11.10...11.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.60...9.80
2nd pressure hPa : 275
Rack travel in m: 9.90...10.00
3rd pressure hPa : 400
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 105.5...108.5
1000 s: (103.0...111.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.10
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...200.0
1000 s: (166.0...204.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 30.0...34.0
1000 s: (27.5...36.5)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

On activation of the starting solenoid,
the start position must be reached.

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0q20
 Edition : 28.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 760
 Injection pump
 Pump designation : PE6P110A320RS3108X
 EP type number : 0 411 816 730
 Governor
 Governor design. : RGV250...1100PA920-2
 Governor no. : 0 421 813 779

Customer spec. information
 Customer : VOLVO

Engine : THD100ED

1st version kW : 203.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.10...12.20

Del. quantity cm3/ : 16.0...16.2

100 s: (15.7...16.5)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.0...5.2

Del. quantity cm3/ : 3.0...3.4

100 s: (2.7...3.6)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.10...1.30

2nd speed rpm : 500

travel mm : 4.10...4.90

3rd speed rpm : 700

travel mm : 6.30...6.70

4th speed rpm : 950

travel mm : 6.30...6.70

5th speed rpm : 1100

travel mm : 7.00...7.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1175

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del. quantity : 160.0...162.0

1000 : (157.0...165.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control Lever
position degrees: 61...69

Testing:

1st rack travel in: 11.10
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1225...1255
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 8...16

Testing:

Speed rpm : 100
Minimum rack travel: 6.70
Speed rpm : 250
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

Speed rpm : 250...425

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.10...12.20

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.30...9.40

2nd pressure hPa : 275

Rack travel in m: 9.60...9.70

3rd pressure hPa : 650

Rack travel in m: 11.70...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 700

Del.quantity cm³/ : 105.5...108.5
1000 s: (103.0...111.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 170.0...200.0
1000 s: (166.0...204.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250

Rack travel in mm : 5.00...5.20

Del.quantity cm³/ : 30.0...34.0
1000 s: (27.5...36.5)

Spread cm³ : 3.00

1000 s: (6.00)

Remarks:

On activation of the starting solenoid,
the start position must be reached.

Delivery-valve spring pre-tension =
2.40...2.60 mm.

Permissible alteration from 2.20...2.90
mm

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0q21
Edition : 28.03.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 846 784
Injection pump
Pump designation : PE6P110A320RS3108V
EP type number : 0 411 816 737
Governor
Governor design. : RQV250...1100PA920-3
Governor no. : 0 421 813 780

Customer-spec. information
Customer : VOLVO

Engine : B10/THD101FD

1st version kW : 210.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.70...13.80

Del.quantity cm³/ : 18.0...18.2

100 s: (17.7...18.5)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.3...5.5

Del.quantity cm³/ : 3.0...3.4

100 s: (2.7...3.6)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.10...1.30

2nd speed rpm : 500
travel mm : 4.10...4.90

3rd speed rpm : 700
travel mm : 6.30...6.70

4th speed rpm : 950
travel mm : 6.30...6.70

5th speed rpm : 1100
travel mm : 7.00...7.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1175

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del.quantity : 180.0...182.0

1000 : (177.0...185.0)

Spread cm3 : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:
1st rack travel in: 12.70
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 7...15

Testing:
Speed rpm : 100
Minimum rack travel: 6.80
Speed rpm : 250
Rack travel in mm : 5.30...5.50
Rack travel in mm : 2.00
Speed rpm : 345...405

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.70...13.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in mm: 9.60...9.90
2nd pressure hPa : 300
Rack travel in mm: 10.00...10.10
3rd pressure hPa : 870
Rack travel in mm: 12.90...13.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 106.0...108.0
1000 s: (103.0...111.0)

BREAKAWAY

C03

1st version
1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 160.0...190.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.30...5.50
Del.quantity cm3/ : 30.0...34.0
1000 s: (27.5...36.5)
Spread cm3 : 3.00
1000 s: (6.00)

Remarks:

:
On activation of the starting solenoid,
the start position must be reached.

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 h
Edition : 28.03.91
Replaces : 18.2.91
Test oil : ISO-4113

Combination no. : 0 401 846 826

Injection pump
Pump designation : PE6P120A32URS3178
EP type number : 0 411 826 752
Governor
Governor design. : RQV250...1025PA921-2
Governor no. : 0 421 813 785

Customer-spec. information
Customer : VOLVO

Engine : TD122FS

1st version kW : 287.0
Rated speed : 2050

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
: (3.55...3.75)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.00...14.10

Del.quantity cm3/ : 25.3...25.5

100 s: (25.0...25.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 4.8...5.1

Del.quantity cm3/ : 1.7...2.2

100 s: (1.5...2.5)

Spread cm3 : 0.5

100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40

2nd speed rpm : 450
travel mm : 3.60...4.20

3rd speed rpm : 800
travel mm : 6.30...6.70

4th speed rpm : 1070
travel mm : 8.00...8.20

5th speed rpm : 1150
travel mm : 9.30...9.70

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del.quantity : 253.0...255.0
1000 : (250.0...258.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:

1st rack travel in: 13.00
Speed rpm : 1055...1065
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 59...67

Testing:

Speed rpm : 100
Minimum rack travel: 6.40
Speed rpm : 250
Rack travel in mm : 4.80...5.10

CONSTANT REGULATION

Speed rpm : 250...400

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 14.00...14.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.30...10.50
2nd pressure hPa : 90
Rack travel in m: 10.50...10.60
3rd pressure hPa : 760
Rack travel in m: 13.70...13.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 163.0...165.0
1000 s: (160.0...168.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 1055...1065

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 270.0...310.0
1000 s: (266.0...314.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.80...5.10
Del.quantity cm3/ : 17.5...22.5
1000 s: (15.0...25.0)
Spread cm3 : 5.00
1000 s: (7.00)

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 z2
Edition : 28.03.91
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 846 836

Injection pump
Pump designation : PE6P120A320RS3186-1
EP type number : 0 411 826 774
Governor
Governor design. : RQV250...1100PA921-5
Governor no. : 0 421 813 788

Customer-spec. information
Customer : VOLVO

Engine : TD102FDQ

1st version kW : 232.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
: (2.55...2.75)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.40...11.50

Del.quantity cm3/ : 19.7...19.9

100 s: (19.4...20.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 4.2...4.4

Del.quantity cm3/ : 1.7...2.2

100 s: (1.4...2.4)

Spread cm3 : 0.5

100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40

2nd speed rpm : 350
travel mm : 2.20...2.80

3rd speed rpm : 700
travel mm : 6.40...6.60

4th speed rpm : 1135
travel mm : 7.70...7.90

5th speed rpm : 1210
travel mm : 8.90...9.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1170

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1000

Del.quantity : 197.0...199.0
1000 : (194.0...202.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:

1st rack travel in: 10.40
Speed rpm : 1130...1140
2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 59...67

Testing:

Speed rpm : 100
Minimum rack travel: 5.70
Speed rpm : 250
Rack travel in mm : 4.20...4.40

CONSTANT REGULATION

Speed rpm : 250...360

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.40...11.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.70...8.90
2nd pressure hPa : 80
Rack travel in m: 9.00...9.10
3rd pressure hPa : 400
Rack travel in m: 11.00...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 143.0...145.0
1000 s: (140.0...148.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1130...1140

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 260.0...310.0
1000 s: (256.0...314.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.20...4.40
Del.quantity cm3/ : 17.0...22.0
1000 s: (14.5...24.5)
Spread cm3 : 5.00
1000 s: (7.00)

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 y2
 Edition : 28.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 851
 Injection pump
 Pump designation : PE6P110A320RS3080
 EP type number : 0 411 816 722
 Governor
 Governor design. : RQV250...1050PA921-9
 Governor no. : 0 421 813 792

Customer-spec. information
 Customer : VOLVO

Engine : TD102FAQ

1st version kW : 221.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.00...13.10

Del.quantity cm3/ : 18.5...18.7

100 s: (18.2...19.0)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 3.8...4.0

Del.quantity cm3/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40

2nd speed rpm : 350
 travel mm : 2.20...2.80

3rd speed rpm : 700
 travel mm : 6.30...6.70

4th speed rpm : 1085
 travel mm : 7.70...7.90

5th speed rpm : 1170
 travel mm : 9.10...9.50

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1120

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 185.0...187.0

1000 : (182.0...190.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 12.00
Speed rpm : 1080...1090
2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 59...67

Testing:
Speed rpm : 100
Minimum rack travel: 5.30
Speed rpm : 250
Rack travel in mm : 3.80...4.00

CONSTANT REGULATION
Speed rpm : 250...370

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.00...13.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.20...10.40
2nd pressure hPa : 520
Rack travel in m: 12.80...12.90
3rd pressure hPa : 150
Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 136.0...139.0
1000 s: (133.5...141.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 1080...1090

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...190.0
1000 s: (156.0...194.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.80...4.00
Del.quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 e2
 Edition : 28.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 852
 Injection pump
 Pump designation : PE6P120A32ORS3118
 EP type number : 0 411 826 726
 Governor
 Governor design. : RQV250...1050PA921-10
 Governor no. : 0 421 813 793

Customer-spec. information
 Customer : VOLVO

Engine : TD122FAQ

1st version kW : 287.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
 : (2.55...2.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.20...13.30

Del.quantity cm3/ : 23.4...23.6

100 s: (23.1...23.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 3.3...3.5

Del.quantity cm3/ : 1.8...2.3
 100 s: (1.5...2.5)

Spread cm3 : 0.5

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40

2nd speed rpm : 350
 travel mm : 2.20...2.80

3rd speed rpm : 700
 travel mm : 6.40...6.60

4th speed rpm : 1085
 travel mm : 8.40...8.60

5th speed rpm : 1160
 travel mm : 9.60...10.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1085

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900
Del.quantity : 234.5...236.5
1000 : (231.5...239.5)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 12.20
Speed rpm : 1080...1090
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 59...67

Testing:
Speed rpm : 100
Minimum rack trave: 4.80
Speed rpm : 250
Rack travel in mm : 3.30...3.50

CONSTANT REGULATION
Speed rpm : 250...350

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.20...13.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.20...9.40
2nd pressure hPa : 80
Rack travel in m: 9.60...9.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 154.0...156.0
1000 s: (151.0...159.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 1080...1090

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...280.0
1000 s: (236.0...284.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.30...3.50
Del.quantity cm3/ : 18.0...23.0
1000 s: (15.5...25.5)
Spread cm3 : 5.00
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 e3
 Edition : 28.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 853
 Injection pump
 Pump designation : PE6P120A32ORS3118
 EP type number : 0 411 826 726
 Governor
 Governor design. : RGV250...900PA921-11
 Governor no. : 0 421 813 794

Customer-spec. information
 Customer : VOLVO

Engine : TD122FBQ

1st version kW : 287.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
 : (2.55...2.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.20...13.30

Del.quantity cm3/ : 23.4...23.6

100 s: (23.1...23.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 3.3...3.5

Del.quantity cm3/ : 1.8...2.3
 100 s: (1.5...2.5)

Spread cm3 : 0.5

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40

2nd speed rpm : 350
 travel mm : 2.20...2.80

3rd speed rpm : 700
 travel mm : 6.40...6.60

4th speed rpm : 935
 travel mm : 7.60...7.80

5th speed rpm : 1015
 travel mm : 8.90...9.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 980

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 234.5...236.5
1000 : (231.5...239.5)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:

1st rack travel in: 12.20
Speed rpm : 930...940
2nd rack travel in: 4.00
Speed rpm : 1000...1030
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 59...67
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 3.4

Testing:

Speed rpm : 100
Minimum rack travel: 4.80
Speed rpm : 250
Rack travel in mm : 3.30...3.50

CONSTANT REGULATION

Speed rpm : 250...350

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.20...13.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.20...9.40
2nd pressure hPa : 80
Rack travel in m: 9.60...9.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700

Del.quantity cm3/ : 154.0...156.0
1000 s: (151.0...159.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 930...940

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...280.0
1000 s: (236.0...284.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.30...3.50
Del.quantity cm3/ : 18.0...23.0
1000 s: (15.5...25.5)
Spread cm3 : 5.00
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 e4
 Edition : 28.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 854
 Injection pump
 Pump designation : PE6P120A320RS3118-1
 EP type number : 0 411 826 739
 Governor
 Governor design. : RQV250...850PA921-12
 Governor no. : 0 421 813 795

Customer-spec. information
 Customer : VOLVO

Engine : TD122FCQ

1st version kW : 287.0
 Rated speed : 1700

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
 : (2.55...2.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.30...12.40

Del.quantity cm3/ : 21.4...21.6

100 s: (21.1...21.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 3.3...3.5

Del.quantity cm3/ : 1.8...2.3

100 s: (1.5...2.5)

Spread cm3 : 0.5

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.00...1.40

2nd speed rpm : 350

travel mm : 2.20...2.80

3rd speed rpm : 700

travel mm : 6.40...6.60

4th speed rpm : 885

travel mm : 7.60...7.80

5th speed rpm : 955

travel mm : 8.80...9.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 930

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 214.5...216.5
1000 : (211.5...219.5)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 11.30
Speed rpm : 880...890
2nd rack travel in: 4.00
Speed rpm : 990...970
4th rack travel in: 1100
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 59...67

Testing:
Speed rpm : 100
Minimum rack travel: 4.80
Speed rpm : 250
Rack travel in mm : 3.30...3.50

CONSTANT REGULATION

Speed rpm : 250...350

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.30...12.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.20...9.40
2nd pressure hPa : 80
Rack travel in m: 9.60...9.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 154.0...156.0
1000 s: (151.0...159.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 880...890

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...280.0
1000 s: (236.0...284.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.30...3.50
Del.quantity cm3/ : 18.0...23.0
1000 s: (15.5...25.5)
Spread cm3 : 5.00
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 a3
 Edition : 19.03.91
 Replaces : 15.1.88
 Test oil : ISO-4113
 Combination no. : 0 401 846 855
 Injection pump
 Pump designation : PE6P120A320RS3178-1
 EP type number : 0 411 826 764
 Governor
 Governor design. : RQV250...950PA657-21
 Governor no. : 0 421 813 651

Customer-spec. information
 Customer : VOLVO

Engine : TD122FK,FR

1st version kW : 287.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.20...14.30

Del.quantity cm3/ : 25.9...26.1

100 s: (25.6...26.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 4.8...5.1

Del.quantity cm3/ : 1.7...2.2

100 s: (1.4...2.5)

Spread cm3 : 0.5

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40

2nd speed rpm : 450
 travel mm : 3.60...4.20

3rd speed rpm : 700
 travel mm : 6.40...6.60

4th speed rpm : 985
 travel mm : 8.20...8.40

5th speed rpm : 1060
 travel mm : 9.60...10.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1000

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1000

Del.quantity : 259.0...261.0
1000 : (256.0...264.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 13.20
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1090...1120
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 61...69

Testing:
Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 250
Rack travel in mm : 4.80...5.10

CONSTANT REGULATION
Speed rpm : 250...380

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 14.20...14.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.00...10.20
2nd pressure hPa : 120
Rack travel in m: 10.40...10.50
3rd pressure hPa : 875
Rack travel in m: 13.80...14.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 163.0...165.0
1000 s: (160.0...168.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.20
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 270.0...310.0
1000 s: (266.0...314.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.80...5.10
Del.quantity cm3/ : 17.5...22.5
1000 s: (14.5...25.5)
Spread cm3 : 5.00
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 h3
 Edition : 28.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 855
 Injection pump
 Pump designation : PE6P120A320RS3178-1
 EP type number : 0 411 826 764
 Governor
 Governor design. : RQV250...950PA921-13
 Governor no. : 0 421 813 796

Customer-spec. information
 Customer : VOLVO

Engine : TD122FK,FR

1st version kW : 287.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.20...14.30

Del.quantity cm3/ : 25.9...26.1

100 s: (25.6...26.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 4.8...5.1

Del.quantity cm3/ : 1.7...2.2

100 s: (1.4...2.5)

Spread cm3 : 0.5

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40

2nd speed rpm : 450
 travel mm : 3.60...4.20

3rd speed rpm : 700
 travel mm : 6.40...6.60

4th speed rpm : 985
 travel mm : 8.20...8.40

5th speed rpm : 1060
 travel mm : 9.60...10.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1000

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1000

Del.quantity : 259.0...261.0
1000 : (256.0...264.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 13.20
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1090...1120
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 61...69

Testing:
Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 250
Rack travel in mm : 4.80...5.10

CONSTANT REGULATION

Speed rpm : 250...380

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 14.20...14.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.00...10.20
2nd pressure hPa : 120
Rack travel in m: 10.40...10.50
3rd pressure hPa : 875
Rack travel in m: 13.80...14.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 163.0...165.0
1000 s: (160.0...168.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.20
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 270.0...310.0
1000 s: (266.0...314.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.80...5.10
Del.quantity cm3/ : 17.5...22.5
1000 s: (14.5...25.5)
Spread cm3 : 5.00
1000 s: (7.00)

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 y3
 Edition : 28.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 856
 Injection pump
 Pump designation : PE6P110A320RS3080-2
 EP type number : 0 411 816 750
 Governor
 Governor design. : RQV250...1050PA921-7
 Governor no. : 0 421 813 790

Customer-spec. information
 Customer : VOLVO

Engine : TD102FEQ

1st version kW : 191.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.50...11.60

Del.quantity cm3/ : 16.2...16.4

100 s: (15.9...16.7)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 3.8...4.0

Del.quantity cm3/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40

2nd speed rpm : 350
 travel mm : 2.20...2.80

3rd speed rpm : 750
 travel mm : 6.30...6.70

4th speed rpm : 1085
 travel mm : 7.80...8.00

5th speed rpm : 1160
 travel mm : 9.00...9.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 162.0...164.0

1000 : (159.0...167.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:

1st rack travel in: 10.50
Speed rpm : 1080...1090
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 59...67

Testing:

Speed rpm : 100
Minimum rack travel: 5.30
Speed rpm : 250
Rack travel in mm : 3.80...4.00

CONSTANT REGULATION

Speed rpm : 250...360

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 11.50...11.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.10
2nd pressure hPa : 110
Rack travel in m: 10.20...10.30
3rd pressure hPa : 320
Rack travel in m: 11.20...11.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 132.0...135.0
1000 s: (129.5...137.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1080...1090

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...190.0
1000 s: (156.0...194.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.80...4.00
Del.quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 v2
 Edition : 02.10.89
 Replaces : 11.12.87
 Test oil : ISO-4113

Combination no. : 0 401 846 857

Injection pump
 Pump designation : PE6P110A320RS3080-1
 EP type number : 0 411 816 734
 Governor
 Governor design. : RQV250....950PA657-16
 Governor no. : 0 421 813 655

Customer spec. information
 Customer : VOLVO-TRUCK

Engine : TD102FBQ

1st version kW : 228.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.30...14.40

Del.quantity cm3/ : 19.9...20.1

100 s: (19.6...20.4)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 3.8...4.0

Del.quantity cm3/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40

2nd speed rpm : 350
 travel mm : 2.20...2.80

3rd speed rpm : 750
 travel mm : 6.30...6.70

4th speed rpm : 985
 travel mm : 8.20...8.40

5th speed rpm : 1060
 travel mm : 9.10...9.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 985

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 199.0...201.0

1000 : (196.0...204.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 13.30
Speed rpm : 980...990
2nd rack travel in: 4.00
Speed rpm : 1050...1080
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 59...67

Testing:
Speed rpm : 100
Minimum rack travel: 5.30
Speed rpm : 250
Rack travel in mm : 3.80...4.00

CONSTANT REGULATION
Speed rpm : 250...360

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.30...14.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.80...11.00
2nd pressure hPa : 110
Rack travel in m: 11.10...11.20
3rd pressure hPa : 670
Rack travel in m: 14.00...14.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm³/ : 132.0...135.0
1000 s: (129.5...137.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.30
Speed rpm : 980...990

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 160.0...190.0
1000 s: (156.0...194.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.80...4.00
Del. quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 y4
 Edition : 28.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 857
 Injection pump
 Pump designation : PE6P110A32ORS3080-1
 EP type number : 0 411 816 734
 Governor
 Governor design. : RGV250...950PA921-8
 Governor no. : 0 421 813 791

Customer-spec. information
 Customer : VOLVO-TRUCK

Engine : TD102FBQ

1st version kW : 228.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.30...14.40

Del.quantity cm3/ : 19.9...20.1

100 s: (19.6...20.4)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 3.8...4.0

Del.quantity cm3/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.00...1.40

2nd speed rpm : 350

travel mm : 2.20...2.80

3rd speed rpm : 750

travel mm : 6.30...6.70

4th speed rpm : 985

travel mm : 8.20...8.40

5th speed rpm : 1060

travel mm : 9.10...9.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 985

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 199.0...201.0

1000 : (196.0...204.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 13.30
Speed rpm : 980...990
2nd rack travel in: 4.00
Speed rpm : 1050...1080
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 59...67

Testing:
Speed rpm : 100
Minimum rack travel: 5.30
Speed rpm : 250
Rack travel in mm : 3.80...4.00

CONSTANT REGULATION
Speed rpm : 250...360

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.30...14.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.80...11.00
2nd pressure hPa : 110
Rack travel in m: 11.10...11.20
3rd pressure hPa : 670
Rack travel in m: 14.00...14.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 132.0...135.0
1000 s: (129.5...137.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.30
Speed rpm : 980...990

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...190.0
1000 s: (156.0...194.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.80...4.00
Del.quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

Delivery valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 y5
Edition : 28.03.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 846 866
Injection pump
Pump designation : PE6P110A32ORS3080
EP type number : 0 411 816 722
Governor
Governor design. : RGV250...850PA921-1
Governor no. : 0 421 813 784

Customer spec. information
Customer : VOLVO

Engine : TD102FG0

1st version kW : 205.0
Rated speed : 1700

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.70...13.80

Del.quantity cm3/ : 18.5...18.7

100 s: (18.2...19.0)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 3.8...4.0

Del.quantity cm3/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.00...1.40

2nd speed rpm : 350

travel mm : 2.20...2.80

3rd speed rpm : 700

travel mm : 6.40...6.60

4th speed rpm : 850

travel mm : 6.70...6.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 935

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 185.0...187.0

1000 : (182.0...190.0)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 111...119

Testing:

1st rack travel in: 12.70

Speed rpm : 890...900

2nd rack travel in: 4.00

Speed rpm : 955...985

4th rack travel in: 1100

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 58...66

Testing:

Speed rpm : 100

Minimum rack travel: 5.40

Speed rpm : 250

Rack travel in mm : 3.80...4.00

Rack travel in mm : 2.00

Speed rpm : 285...345

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 900

Rack travel mm : 13.70...13.80

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.80...11.00

2nd pressure hPa : 530

Rack travel in m: 13.50...13.60

3rd pressure hPa : 120

Rack travel in m: 11.10...11.30

FUEL DELIVER. CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 700

Del.quantity cm3/ : 132.0...135.0

1000 s: (129.5...137.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.70

Speed rpm : 890...900

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 160.0...190.0

1000 s: (160.0...190.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250

Rack travel in mm : 3.80...4.00

Del.quantity cm3/ : 15.0...19.0

1000 s: (12.5...21.5)

Spread cm3 : 3.00

1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.

Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 y6
 Edition : 28.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 867
 Injection pump
 Pump designation : PE6P110A320RS3080
 EP type number : 0 411 816 722
 Governor
 Governor design. : RQV250...1050PA921-14
 Governor no. : 0 421 813 797
 Customer spec. information
 Customer : VOLVO
 Engine : TD102FCQ
 1st version kW : 220.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 13.70...13.80
 Del.quantity cm³/ : 18.5...18.7
 100 s : (18.2...19.0)
 Spread cm³ : 0.4
 100 s : (0.7)
 2nd speed rpm : 250.0
 Rack travel in mm : 3.8...4.0
 Del.quantity cm³/ : 1.5...1.9
 100 s : (1.2...2.1)
 Spread cm³ : 0.3
 100 s : (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40
 2nd speed rpm : 550
 travel mm : 4.90...5.50
 3rd speed rpm : 700
 travel mm : 6.40...6.60
 4th speed rpm : 1050
 travel mm : 7.20...7.40

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1120
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 900
 Del.quantity : 185.0...187.0
 1000 : (182.0...190.0)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 12.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 59...67

Testing:
Speed rpm : 100
Minimum rack travel: 5.40
Speed rpm : 250
Rack travel in mm : 3.80...4.00
Rack travel in mm : 2.00
Speed rpm : 300...360

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.70...13.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.30...10.50
2nd pressure hPa : 610
Rack travel in m: 13.50...13.60
3rd pressure hPa : 120
Rack travel in m: 10.60...10.80

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 119.0...122.0
1000 s: (116.5...124.5)

BREAKAWAY

1st version

D01

1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...190.0
1000 s: (160.0...190.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.80...4.00
Del.quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 z3
Edition : 28.03.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 846 868
Injection pump
Pump designation : PE6P120A320RS3186
EP type number : 0 411 826 756
Governor
Governor design. : RQV250...950PA921-6
Governor no. : 0 421 813 789

Customer-spec. information
Customer : VOLVO

Engine : TD102FF

1st version kW : 230.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
: (2.55...2.75)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.40...11.50

Del.quantity cm3/ : 19.7...19.9

100 s: (19.4...20.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 3.9...4.1

Del.quantity cm3/ : 1.7...2.2

100 s: (1.4...2.4)

Spread cm3 : 0.5

100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40

2nd speed rpm : 350
travel mm : 2.20...2.80

3rd speed rpm : 700
travel mm : 6.40...6.60

4th speed rpm : 985
travel mm : 8.20...8.40

5th speed rpm : 1060
travel mm : 9.60...10.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1000

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1000

Del.quantity : 197.0...199.0
1000 : (194.0...202.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 10.40
Speed rpm : 980...990
2nd rack travel in: 4.00
Speed rpm : 1040...1070
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 59...67

Testing:
Speed rpm : 100
Minimum rack travel: 5.40
Speed rpm : 250
Rack travel in mm : 3.90...4.10

CONSTANT REGULATION
Speed rpm : 250...360

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.40...11.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.80...9.00
2nd pressure hPa : 80
Rack travel in m: 9.20...9.30
3rd pressure hPa : 400
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 143.0...145.0
1000 s: (140.0...148.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 980...990

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.90...4.10
Del.quantity cm3/ : 17.0...22.0
1000 s: (14.5...24.5)
Spread cm3 : 5.00
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 i1
 Edition : 28.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 869
 Injection pump
 Pump designation : PE6P120A320RS3118
 EP type number : 0 411 826 726
 Governor
 Governor design. : RGV250...1100PA920-5
 Governor no. : 0 421 813 782

Customer spec. information
 Customer : VOLVO

Engine : THD 102 KD

1st version kW : 250.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
 : (2.55...2.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.70...12.80

Del.quantity cm3/ : 22.2...22.4

100 s: (21.9...22.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 4.3...4.5

Del.quantity cm3/ : 2.7...3.3

100 s: (2.4...3.6)

Spread cm3 : 0.5

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.10...1.30

2nd speed rpm : 500
 travel mm : 4.10...4.90

3rd speed rpm : 700
 travel mm : 6.30...6.70

4th speed rpm : 950
 travel mm : 6.30...6.70

5th speed rpm : 1100
 travel mm : 7.00...7.50

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1175

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del.quantity : 222.0...224.0
1000 : (219.0...227.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 11.70
Speed rpm : 1130...1140
2nd rack travel in: 4.00
Speed rpm : 1210...1240
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 63...71

Testing:
Speed rpm : 100
Minimum rack travel: 5.90
Speed rpm : 250
Rack travel in mm : 4.30...4.50

CONSTANT REGULATION
Speed rpm : 250...420

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 12.70...12.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.30...8.50
2nd pressure hPa : 700
Rack travel in m: 12.50...12.60
3rd pressure hPa : 120
Rack travel in m: 9.00...9.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 131.0...133.0
1000 s: (128.0...136.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1130...1140

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 230.0...270.0
1000 s: (225.0...275.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.30...4.50
Del.quantity cm3/ : 27.0...33.0
1000 s: (24.0...36.0)
Spread cm3 : 5.00
1000 s: (7.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0q22
Edition : 28.03.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 846 883
Injection pump
Pump designation : PE6P110A32ORS3108-1
EP type number : 0 411 816 757
Governor
Governor design. : RQV250...1100PA920-4
Governor no. : 0 421 813 781

Customer spec. information
Customer : VOLVO

Engine : THD 102 KB

1st version kW : 212.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.90...14.00

Del.quantity cm3/ : 18.3...18.5

100 s: (18.0...18.8)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.6...5.8

Del.quantity cm3/ : 3.0...3.4

100 s: (2.7...3.6)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.10...1.30

2nd speed rpm : 500

travel mm : 4.10...4.90

3rd speed rpm : 700

travel mm : 6.30...6.70

4th speed rpm : 950

travel mm : 6.30...6.70

5th speed rpm : 1100

travel mm : 7.00...7.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1175

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del.quantity : 183.0...185.0

1000 : (180.0...188.0)

Spread cm3 : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:

1st rack travel in: 12.90
Speed rpm : 1130...1140
2nd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:

Speed rpm : 100
Minimum rack travel: 7.20
Speed rpm : 250
Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

Speed rpm : 250...425

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.90...14.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.20...10.40
2nd pressure hPa : 240
Rack travel in m: 10.40...10.50
3rd pressure hPa : 800
Rack travel in m: 13.30...13.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 111.5...114.5
1000 s: (109.0...117.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.90
Speed rpm : 1130...1140

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 160.0...190.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.60...5.80
Del.quantity cm3/ : 30.0...34.0
1000 s: (27.5...36.5)
Spread cm3 : 3.00
1000 s: (6.00)

Remarks:

On activation of the starting solenoid,
the start position must be reached.

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 y7
 Edition : 28.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 890
 Injection pump
 Pump designation : PE6P110A320RS3080-3
 EP type number : 0 411 816 758
 Governor
 Governor design. : RQV250...950PA921-15
 Governor no. : 0 421 813 798

Customer-spec. information
 Customer : VOLVO

Engine : TD102FH

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.60...12.70

Del.quantity cm3/ : 17.9...18.1

100 s: (17.6...18.4)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 3.8...4.0

Del.quantity cm3/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.00...1.40

2nd speed rpm : 350

travel mm : 2.20...2.80

3rd speed rpm : 750

travel mm : 6.30...6.70

4th speed rpm : 985

travel mm : 8.20...8.40

5th speed rpm : 1060

travel mm : 9.10...9.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 985

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 179.0...181.0

1000 : (176.0...184.0)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 11.60
Speed rpm : 980...990
2nd rack travel in: 4.00
Speed rpm : 1040...1070
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 59...67

Testing:
Speed rpm : 100
Minimum rack travel: 5.30
Speed rpm : 250
Rack travel in mm : 3.80...4.00

CONSTANT REGULATION
Speed rpm : 250...360

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.60...12.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.10
2nd pressure hPa : 125
Rack travel in m: 10.20...10.30
3rd pressure hPa : 490
Rack travel in m: 12.20...12.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 129.5...132.5
1000 s: (127.0...135.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.60
Speed rpm : 980...990

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...190.0
1000 s: (156.0...194.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.80...4.00
Del.quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 p 7
 Edition : 28.03.91
 Replaces : 14.9.90
 Test oil : ISO-4113
 Combination no. : 0 401 846 899
 Injection pump
 Pump designation : PE6P110A72ORS3225
 EP type number : 0 411 816 763
 Governor
 Governor design. : RQ275/1200PA913-1
 Governor no. : 0 421 801 549

Customer-spec. information
 Customer : DAF

Engine : HS 200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 12.50...12.60
 Del.quantity cm3/ : 12.4...12.6
 100 s: (12.1...12.8)
 Spread cm3 : 0.4
 100 s: (0.7)

2nd speed rpm : 275.0
 Rack travel in mm : 7.2...7.4
 Del.quantity cm3/ : 1.4...1.9
 100 s: (1.1...2.1)
 Spread cm3 : 0.4
 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 550
 Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1000
 Del.quantity : 124.0...126.0
 1000 : (121.5...128.5)
 Spread cm3 : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 550
 Rack travel in mm : 15.8

Testing:
 1st rack travel in: 11.50
 Speed rpm : 1235...1250
 2nd rack travel in: 4.00
 Speed rpm : 1320...1350
 4th rack travel in: 1450
 Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 275
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack trave: 6.70
Speed rpm : 275
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 13.50...13.60
2nd speed rpm : 1200
Rack travel in m: 13.40...13.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 12.50...12.60

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.90...11.10
2nd pressure hPa : 360
Rack travel in m: 12.10...12.20
3rd pressure hPa : 270
Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 87.0...89.0
1000 s: (84.5...91.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.50
Speed rpm : 1235...1250

LOW IDLE

Speed rpm : 275

Rack travel in mm : 4.70...4.90

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 d
Edition : 22.03.91
Replaces : 14.9.90
Test oil : ISO-4113

Combination no. : 0 401 846 900

Injection pump
Pump designation : PE6P120A320RS3240
EP type number : 0 411 826 786
Governor
Governor design. : RGV250...1025PA921-16
Governor no. : 0 421 813 799

Customer-spec. information
Customer : VOLVO-TRUCK

Engine : TD122FL

1st version kW : 298.0
Rated speed : 2050

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : 25.1...25.3

100 s: (24.8...25.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0
Rack travel in mm : 6.5...6.7
Del.quantity cm³/ : 1.7...2.2
100 s: (1.5...2.5)
Spread cm³ : 0.5
100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40
2nd speed rpm : 450
travel mm : 3.60...4.20
3rd speed rpm : 800
travel mm : 6.30...6.70
4th speed rpm : 1070
travel mm : 8.00...8.20
5th speed rpm : 1150
travel mm : 9.30...9.70

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1100
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700

Aneroid pressure h: 1200
Del.quantity : 251.0...253.0
1000 : (248.0...256.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 12.60
Speed rpm : 1065...1075
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...68

Testing:
Speed rpm : 100
Minimum rack travel: 8.10
Speed rpm : 250
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION
Speed rpm : 250...380

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.60...13.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.60...9.80
2nd pressure hPa : 85
Rack travel in m: 9.80...9.90
3rd pressure hPa : 800
Rack travel in m: 13.00...13.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700

Del.quantity cm³/ : 154.0...156.0
1000 s: (151.0...159.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1065...1075

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 270.0...310.0
1000 s: (266.0...314.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.50...6.70
Del.quantity cm³/ : 17.5...22.5
1000 s: (15.0...25.0)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 d1
Edition : 22.03.91
Replaces : 14.9.90
Test oil : ISO-4113

Combination no. : 0 401 846 901

Injection pump
Pump designation : PE6P120A32ORS3240-1
EP type number : 0 411 826 787
Governor
Governor design. : RQV250...950PA921-17
Governor no. : 0 421 813 800

Customer-spec. information
Customer : VOLVO-TRUCK

Engine : TD122FH

1st version kW : 269.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.70...12.80

Del.quantity cm3/ : 22.3...22.5

100 s: (22.0...22.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.5...6.7

Del.quantity cm3/ : 1.7...2.2
100 s: (1.5...2.5)

Spread cm3 : 0.5

100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40

2nd speed rpm : 350
travel mm : 2.20...2.80

3rd speed rpm : 750
travel mm : 6.30...6.70

4th speed rpm : 995
travel mm : 8.20...8.40

5th speed rpm : 1060
travel mm : 9.30...9.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1010

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 223.0...225.0
1000 : (220.0...228.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 11.70
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1050...1080
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...68

Testing:
Speed rpm : 100
Minimum rack travel: 8.10
Speed rpm : 250
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION
Speed rpm : 250...380

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.70...12.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.60...9.80
2nd pressure hPa : 85
Rack travel in m: 9.80...9.90
3rd pressure hPa : 470
Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 154.0...156.0
1000 s: (151.0...159.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 270.0...310.0
1000 s: (266.0...314.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.50...6.70
Del.quantity cm3/ : 17.5...22.5
1000 s: (15.0...25.0)
Spread cm3 : 5.00
1000 s: (7.00)

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 p 9
Edition : 28.03.91
Replaces : 14.9.90
Test oil : ISO-4113

Combination no. : 0 401 846 905

Injection pump
Pump designation : PE6P110A720RS3225Z
EP type number : 0 411 816 762
Governor
Governor design. : RQ275/1200PA913-1
Governor no. : 0 421 801 549

Customer-spec. information
Customer : DAF

Engine : HT 168

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ : 12.0...12.2

100 s: (11.7...12.4)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 275.0

Rack travel in mm : 7.2...7.4

Del.quantity cm³/ : 1.4...1.9

100 s: (1.1...2.1)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 120.0...122.0

1000 : (117.5...124.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 15.8

Testing:

1st rack travel in: 11.30

Speed rpm : 1235...1250

2nd rack travel in: 4.00

Speed rpm : 1320...1350

4th rack travel in: 1400

Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 275
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 275
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 340...360

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 13.30...13.40
2nd speed rpm : 1200
Rack travel in m: 13.20...13.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 12.30...12.40

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.80...10.90
2nd pressure hPa : 400
Rack travel in m: 12.00...12.10
3rd pressure hPa : 320
Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del. quantity cm³/ : 83.5...85.5
1000 s: (81.0...88.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1235...1250

LOW IDLE

Speed rpm : 275

Rack travel in mm : 4.70...4.90

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 i
Edition : 19.03.91
Replaces : 16.11.90
Test oil : ISO-4113

Combination no. : 0 401 846 923

Injection pump
Pump designation : PE6P120A32ORS3118
EP type number : 0 411 826 726
Governor
Governor design. : RGV250...1100PA920-6
Governor no. : 0 421 813 872

Customer-spec. information
Customer : VOLVO-TRUCK

Engine : THD 102 KD

1st version kW : 250.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
: (2.55...2.75)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.10...13.20

Del.quantity cm3/ : 21.7...21.9

100 s: (21.4...22.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0
Rack travel in mm : 5.1...5.3
Del.quantity cm3/ : 2.9...3.5
100 s: (2.6...3.8)
Spread cm3 : 0.5
100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40
2nd speed rpm : 500
travel mm : 4.10...4.70
3rd speed rpm : 800
travel mm : 6.30...6.70
4th speed rpm : 1140
travel mm : 7.70...7.90
5th speed rpm : 1230
travel mm : 9.00...9.40

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1175
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Aneroid pressure h: 1200

Del.quantity : 217.0...219.0
1000 : (214.0...222.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:
1st rack travel in: 12.10
Speed rpm : 1130...1140
2nd rack travel in: 4.00
Speed rpm : 1210...1240
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...68

Testing:
Speed rpm : 100
Minimum rack trave: 6.60
Speed rpm : 250
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 250...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.10...13.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.00...9.20
2nd pressure hPa : 230
Rack travel in m: 9.40...9.50
3rd pressure hPa : 825
Rack travel in m: 12.70...12.90

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 133.0...135.0
1000 s: (130.0...138.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.10
Speed rpm : 1130...1140

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 230.0...270.0
1000 s: (225.0...275.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.10...5.30
Del.quantity cm³/ : 29.0...35.0
1000 s: (26.0...38.0)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : HAE 12,0 a
Edition : 28.03.91
Replaces : 20.12.90
Test oil : ISO-4113

Combination no. : 0 401 846 933

Injection pump
Pump designation : PE6P110A320RS3260
EP type number : 0 411 816 775
Governor
Governor design. : RQ250/1050PA969
Governor no. : 0 421 801 538

Customer-spec. information
Customer : HAEP

Engine : X6130 NA

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
: (3.55...3.75)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1035

Rack travel in mm : 11.10...11.20

Del.quantity cm3/ : 11.8...12.1

100 s: (11.5...12.3)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.3

Del.quantity cm3/ : 1.5...2.0

100 s: (1.2...2.2)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 500

Rack travel in mm : 12.40...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1035

Del.quantity : 118.0...121.0

1000 : (115.5...123.5)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 500

Rack travel in mm : 13.2

Testing:

1st rack travel in: 10.10

Speed rpm : 1085...1100

2nd rack travel in: 4.00

Speed rpm : 1110...1140

4th rack travel in: 1250

Speed rpm : 0.00...1.80

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 8.1

Testing:

Speed rpm : 100
Minimum rack travel: 9.60
Speed rpm : 250
Rack travel in mm : 8.00...8.20
Rack travel in mm : 2.00
Speed rpm : 295...335

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1035
Rack travel in m: 11.10...11.20
2nd speed rpm : 600
Rack travel in m: 11.70...11.90
3rd speed rpm : 760
Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 117.0...122.0
1000 s: (114.0...125.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1085...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 180.0...200.0
1000 s: (176.0...204.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,2 b
Edition : 19.03.91
Replaces : 23.11.90
Test oil : ISO-4113

Combination no. : 0 401 846 939

Injection pump
Pump designation : PE6P110A32ORS3265
EP type number : 0 411 816 778
Governor
Governor design. : RQV300...1050PA232-5
Governor no. : 0 421 813 895

Customer-spec. information
Customer : VME

Engine : TD102KCE

1st version kW : 180.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.20...12.30

Del.quantity cm3/ : 15.2...15.4

100 s: (14.9...15.7)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 4.8...5.0

Del.quantity cm3/ : 1.9...2.3

100 s: (1.7...2.5)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.30...1.70

2nd speed rpm : 450
travel mm : 2.40...3.00

3rd speed rpm : 700
travel mm : 4.30...4.90

4th speed rpm : 1100
travel mm : 7.80...8.00

5th speed rpm : 1200
travel mm : 8.80...9.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1170

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 700

Del.quantity : 152.0...154.0

1000 : (149.0...157.0)

Spread cm³ : 4.50
1000 : (7.50)

RATED SPEED

1st version
Control Lever
position degrees: 113...121

Testing:
1st rack travel in: 11.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 82...90

Testing:
Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 300
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION
Speed rpm : 300...410

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 12.20...12.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.30...10.50
2nd pressure hPa : 130
Rack travel in m: 10.80...10.90
3rd pressure hPa : 250
Rack travel in m: 11.70...11.90

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 1050
Del.quantity cm³/ : 138.0...142.0
1000 s: (136.0...144.0)
Aneroid pressure h: -
Speed rpm : 700

Del.quantity cm³/ : 116.0...118.0
1000 s: (113.0...121.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...190.0
1000 s: (156.0...194.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.80...5.00
Del.quantity cm³/ : 19.0...23.0
1000 s: (17.0...25.0)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 w 1
 Edition : 19.03.91
 Replaces : 18.1.91
 Test oil : ISO-4113
 Combination no. : 0 401 846 943
 Injection pump
 Pump designation : PE6P110A320LS3851
 EP type number : 0 411 816 765
 Governor
 Governor design. : RGV300...1050PA884-9
 Governor no. : 0 421 813 912

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441

1st version kW : 151.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 11.00...11.10
 Del. quantity cm³/ : 11.8...12.0
 100 s: (11.5...12.2)
 Spread cm³ : 0.8
 100 s: (1.3)

2nd speed rpm : 300.0
 Rack travel in mm : 6.5...7.1
 Del. quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.4)
 Spread cm³ : 0.6
 100 s: (1.1)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.50...1.00
 2nd speed rpm : 460
 travel mm : 2.70...3.20
 3rd speed rpm : 730
 travel mm : 4.70...5.20
 4th speed rpm : 1107
 travel mm : 7.90...8.40
 5th speed rpm : 1370
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1100
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del.quantity : 118.0...120.0
1000 : (115.5...122.5)
Spread cm³ : 8.50
1000 : (13.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 10.00
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 83...91

Testing:
Speed rpm : 200
Minimum rack travel: 8.40
Speed rpm : 300
Rack travel in mm : 6.50...7.10
Rack travel in mm : 2.00
Speed rpm : 300...500

CONSTANT REGULATION
Speed rpm : 300...500

START CUT-OUT

Speed 1/min : 5220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm³/ : 117.0...122.0
1000 s: (114.0...125.0)
Spread cm³ : 11.00
1000 s: (14.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.00
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

D25

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAO 18,1 a
 Edition : 01.03.91
 Replaces : 7.1.91
 Test oil : ISO-4113
 Combination no. : 0 401 849 184
 Injection pump
 Pump designation : PE10P110A520/5LS858
 EP type number : 0 411 819 022
 Governor
 Governor design. : RQ900PA988
 Governor no. : 0 421 801 573

Customer-spec. information
 Customer : DAEWOO

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 10- 9- 4- 1- 8- 7-
 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
 216-261-288-333
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 850
 Rack travel in mm : 11.10...11.20
 Del.quantity cm3/ : 15.3...15.6
 100 s: (15.0...15.8)
 Spread cm3 : 0.4
 100 s: (0.8)

2nd speed rpm : 250.0
 Rack travel in mm : 3.5...3.9
 Del.quantity cm3/ : 1.1...1.6
 100 s: (0.8...1.8)
 Spread cm3 : 0.4
 100 s: (0.7)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 850
 Del.quantity : 153.0...156.0
 1000 : (150.5...158.5)
 Spread cm3 : 4.00
 1000 : (8.00)

RATED SPEED

1st version
 Testing:
 1st rack travel in: 10.10
 Speed rpm : 900...905
 2nd rack travel in: 4.00
 Speed rpm : 932...946
 4th rack travel in: 1000
 Speed rpm : 0.00...1.00

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 10.10
 Speed rpm : 900...905

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 16,0 e
Edition : 19.03.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 849 752
Injection pump
Pump designation : PE10P110A920/5LS3276
EP type number : 0 411 819 712
Governor
Governor design. : RQV300...1150PA997
Governor no. : 0 421 813 927

Customer-spec. information
Customer : KHD

Engine : F 10L513

1st version kW : 223.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.10...3.20
: (3.05...3.25)
Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.90...10.00

Del.quantity cm3/ : 10.8...11.0

100 s: (10.5...11.3)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 4.4...4.6

Del.quantity cm3/ : 1.2...1.7

100 s: (1.0...2.0)

Spread cm3 : 0.4

100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 2.30...2.70

2nd speed rpm : 450

travel mm : 3.40...3.90

3rd speed rpm : 800

travel mm : 7.10...7.60

4th speed rpm : 1200

travel mm : 10.10...10.30

5th speed rpm : 1300

travel mm : 11.00...11.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 108.0...110.0

1000 : (105.0...113.0)

Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 8.90
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1260...1290
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 80...88

Testing:
Speed rpm : 100
Minimum rack trave: 6.10
Speed rpm : 300
Rack travel in mm : 4.40...4.60

CONSTANT REGULATION
Speed rpm : 300...420

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.90
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...165.0
 1000 s: (131.0...169.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.40...4.60
Del.quantity cm³/ : 12.5...17.5
 1000 s: (10.0...20.0)
Spread cm³ : 4.50
 1000 s: (7.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MMM 21,6 a5
 Edition : 28.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 870 090
 Injection pump
 Pump designation : PE12P120A520/5RS428-1
 EP type number : 0 411 820 034
 Governor
 Governor design. : RSUV300...1150POA357
 Governor no. : 0 421 829 104

Customer-spec. information
 Customer : MMM

Engine : TBD 234 V 12

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 2- 9- 10- 5- 6-
 11- 12- 3- 4- 7- 8

Phasing : 0-30-60-90-120-150-
 180-210-240-270-300-
 330
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 10.10...10.20

Del.quantity cm3/ : 17.0...17.4

100 s: (16.7...17.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.6...5.8
 Del.quantity cm3/ : 2.8...3.6
 100 s: (2.5...3.9)
 Spread cm3 : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 2.00

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:

1st rack travel in: 9.10

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1205...1235

4th rack travel in: 1370

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 10...18

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 5.2
Minimum rack travel : 19.50
Speed rpm : 300
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00
Speed rpm : 350...410

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.10
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 240.0...260.0
1000 s: (236.0...264.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.60...5.80
Del. quantity cm³/ : 28.0...36.0
1000 s: (25.0...39.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Full-load delivery not known. Set
according to engine test report.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 o16
 Edition : 28.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 342
 Injection pump
 Pump designation : PE6P100A720RS447-1
 EP type number : 0 411 806 195
 Governor
 Governor design. : RSV250...750P7A507-2
 Governor no. : 0 421 833 353

Customer-spec. information
 Customer : DAF

Engine : DHT 825

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.20...3.30
 : (3.15...3.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 12.70...12.80
 Del.quantity cm3/ : 14.2...14.4
 100 s: (14.0...14.6)
 Spread cm3 : 0.3
 100 s: (0.6)
 2nd speed rpm : 250.0
 Rack travel in mm : 5.3...5.5
 Del.quantity cm3/ : 0.9...1.3
 100 s: (0.6...1.5)
 Spread cm3 : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del.quantity : 142.0...144.0
 1000 : (140.0...146.0)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 92...100

Testing:
 1st rack travel in: 11.70
 Speed rpm : 750...755
 2nd rack travel in: 4.00
 Speed rpm : 780...795
 4th rack travel in: 950
 Speed rpm : 0.30...1.40

LOW IDLE 1
 Control lever

position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.4
Speed rpm : 250
Rack travel in mm : 5.30...5.50
Rack travel in mm : 2.00
Speed rpm : 250...290

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 750...755

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.30...5.50
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 b1
Edition : 18.02.91
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 876 343

Injection pump
Pump designation : PE6P120A320RS500
EP type number : 0 411 826 140
Governor
Governor design. : RSV250...750P7A507-3
Governor no. : 0 421 833 358

Customer-spec. information
Customer : DAF

Engine : DKZ 1160

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.80...13.90

Del.quantity cm3/ : 24.2...24.4

100 s: (23.9...24.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.7...6.9

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 242.0...244.0

1000 : (239.0...247.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 90...98

Testing:

1st rack travel in: 12.80

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 780...795

4th rack travel in: 950

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 66...74

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.8

Speed rpm : 250

Rack travel in mm : 6.70...6.90

Rack travel in mm : 2.00

Speed rpm : 250...290

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.80

Speed rpm : 750...755

LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.70...6.90

Del.quantity cm³/ : 14.0...20.0

1000 s: (11.0...23.0)

Spread cm³ : 8.00

1000 s: (12.00)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 s
 Edition : 28.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 783
 Injection pump
 Pump designation : PE6P110A720RS3225
 EP type number : 0 411 816 763
 Governor
 Governor design. : RSV250...750P7A507-2
 Governor no. : 0 421 833 353

Customer spec. information
 Customer : DAF

Engine : Hs AG

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.90...13.00

Del. quantity cm³/ : 12.4...12.6

100 s: (12.2...12.8)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 325.0

Rack travel in mm : 7.4...7.5

Del. quantity cm³/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 124.0...126.0

1000 : (122.0...128.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 89...97

Testing:

1st rack travel in: 11.90

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 780...795

4th rack travel in: 950

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 5.3
Speed rpm : 325
Rack travel in mm : 5.20...5.40
Rack travel in mm : 2.00
Speed rpm : 345...385

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 750...755

LOW IDLE

Speed rpm : 325
Rack travel in mm : 5.20...5.40

Remarks:

:

APPLICATION

Generator

Note remarks

Combination no. : 0 401 878 711

Customer-spec. information
Customer : DAIMLER-BENZ

1st version kW : 206.0
Rated speed : 2300

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

Test pressure, bar: 25...27

```
Prestroke mm      : 4.00...4.10
                   : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order      : 8- 7- 2- 6- 3- 5-
                   : 4- 1
```

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

1st speed rpm : 1180

Rack travel in mm : 9.40...9.50

Del.quantity cm³/ : 13.5...13.7

100 s: (13.2...14.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 650.0

Rack travel in mm : 3.3...3.6

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

Control-Lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

1st version

Speed rpm : 1180

Del.quantity : 135.0...137.0

1000 : (132.0...140.0)

Spread cm³ : 5.00

1000 : (9.00)

1st version

Control lever
position degrees: 42...50

Testing:

1st rack travel in: 8.40
Speed rpm : 1210...1215
2nd rack travel in: 4.00
Speed rpm : 1232...1247
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 3.4
Speed rpm : 650
Rack travel in mm : 3.30...3.60
Rack travel in mm : 2.00
Speed rpm : 655...695

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1180
Rack travel in m: 9.40...9.50
2nd speed rpm : 950
Rack travel in m: 10.80...11.10
3rd speed rpm : 1050
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900
Del.quantity cm3/ : 158.0...161.0
1000 s: (155.0...164.0)
Spread cm3 : 8.00
1000 s: (12.0)
Speed rpm : 1075
Del.quantity cm3/ : 148.0...152.0
1000 s: (145.0...155.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.40
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 650
Rack travel in mm : 3.30...3.60
Del.quantity cm3/ : 16.0...22.0
1000 s: (13.0...25.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

:

Engine-speed difference between 1 mm
regulated and control-rod travel 4 mm =
25...35 1/min.

When adjusting and checking, adjust
speed regulation to 1210...1220 l/min.
Afterwards, readjust speed regulation
to 1160...1170 l/min.

APPLICATION

Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 18,3 q
Edition : 28.03.91
Replaces : 6.4.90
Test oil : ISO-4113

Combination no. : 0 401 879 707

Injection pump
Pump designation : PE10P110A320LS3856
EP type number : 0 411 819 711
Governor
Governor design. : RSV675...1050POA823-8

Governer no. : 0 421 833 338

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM 443

1st version kW : 242.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 130...150

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness : 6.00X1.50X600
x Length mm

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 10- 9- 4- 1- 8- 7
- 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
Phasing : 216-261-288-333
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 1030
Rack travel in mm : 12.30...12.40
Del.quantity cm3/ : 12.6...12.8
100 s: (12.3...13.0)
Spread cm3 : 0.4
100 s: (0.7)

2nd speed rpm : 675.0
Rack travel in mm : 5.4...5.7
Del.quantity cm3/ : 1.2...2.0
100 s: (0.9...2.2)
Spread cm3 : 0.4
100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 7.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1030
Del.quantity : 126.0...128.0
1000 : (123.5...130.5)
Spread cm3 : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 88...96

Testing:

1st rack travel in: 11.30
Speed rpm : 1165...1175
2nd rack travel in: 4.00
Speed rpm : 1210...1225
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 75...83
Setting point w/out bumper spring
Speed rpm : 675
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 675
Rack travel in mm : 5.40...5.70

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 114.0...118.0
1000 s: (111.0...121.0)
Spread cm³ : 6.00
1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1165...1175

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 10,0 b2
Edition : 27.02.91
Replaces : 14.12.90
Test oil : ISO-4113
Combination no. : 0 402 035 025
Injection pump
Pump designation : PES5P120A720/3LS512
EP type number : 0 412 025 021
Governor
Governor design. : RQV325...950PA876-8
Governor no. : 0 421 813 868

Customer-spec. information
Customer : MAN

Engine : D2865LF0/LU/01

1st version kW : 198.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.20...11.30

Del. quantity cm3/ : 21.9...22.1

100 s: (21.6...22.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0
Rack travel in mm : 4.0...4.4
Del. quantity cm3/ : 1.7...2.3
100 s: (1.4...2.6)
Spread cm3 : 0.8
100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 995
travel mm : 9.70...9.90
2nd speed rpm : 325
travel mm : 1.30...1.70
3rd speed rpm : 500
travel mm : 3.40...4.00
4th speed rpm : 750
travel mm : 6.60...7.00
5th speed rpm : 1250
travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1050
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 750
Aneroid pressure h: 1000

Del.quantity : 219.0...221.0
1000 : (216.0...224.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 296...304

Testing:
1st rack travel in: 10.10
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1060...1090
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 253...261

Testing:
Speed rpm : 100
Minimum rack travel: 5.70
Speed rpm : 325
Rack travel in mm : 4.10...4.30

CONSTANT REGULATION
Speed rpm : 320...440

TORQUE CONTROL
Dimension a mm : 0.10
Torque control curve - 1st version
1st speed rpm : 950
Rack travel in m: 11.10...11.20
2nd speed rpm : 750
Rack travel in m: 11.20...11.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.20...11.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.90...8.10
2nd pressure hPa : 110
Rack travel in m: 8.30...8.40
3rd pressure hPa : 350
Rack travel in m: 10.20...10.40

START CUT-OUT

Speed 1/min : 245 (265)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 950
Del.quantity cm3/ : 216.0...220.0
1000 s: (213.0...223.0)
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 210.0...216.0
1000 s: (207.0...219.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 128.0...130.0
1000 s: (125.0...133.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack travel: 10.10
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190.0...210.0
1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.00...4.40
Del.quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:
: MAN-NR. 3-7046

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 5
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 10,0 e2
 Edition : 27.02.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 035 027
 Injection pump
 Pump designation : PES5P120A720/3LS528
 EP type number : 0 412 025 022
 Governor
 Governor design. : RQV325...950PA876-9
 Governor no. : 0 421 813 899

Customer-spec. information
 Customer : MAN

Engine : D2865LF04 / LU04

1st version kW : 198.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 13.00...14.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.10...12.20

Del.quantity cm3/ : 22.1...22.3

100 s: (21.8...22.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0
 Rack travel in mm : 4.3...4.7
 Del.quantity cm3/ : 1.7...2.3
 100 s: (1.4...2.6)
 Spread cm3 : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 995
 travel mm : 9.60...9.80
 2nd speed rpm : 325
 travel mm : 0.70...1.10
 3rd speed rpm : 550
 travel mm : 3.80...4.40
 4th speed rpm : 800
 travel mm : 7.00...7.40
 5th speed rpm : 1300
 travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1030
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 1000

Del.quantity : 221.0...223.0
1000 : (218.0...226.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 296...304

Testing:
1st rack travel in: 11.10
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1060...1090
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 252...260

Testing:
Speed rpm : 100
Minimum rack travel: 6.00
Speed rpm : 325
Rack travel in mm : 4.40...4.60

CONSTANT REGULATION
Speed rpm : 340...460

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.10...12.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.10
2nd pressure hPa : 150
Rack travel in m: 9.30...9.40
3rd pressure hPa : 440
Rack travel in m: 11.30...11.60

START CUT-OUT

Speed 1/min : 245 (265)

FUEL DELIVERY CHARACTERISTICS

1st version

E16

Aneroid pressure h: 1000
Speed rpm : 950
Del.quantity cm3/ : 227.0...233.0
1000 s: (224.0...236.0)
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm3/ : 225.0...231.0
1000 s: (222.0...234.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 129.0...131.0
1000 s: (126.0...134.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 200.0...220.0
1000 s: (196.0...224.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.30...4.70
Del.quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:
: MAN-NR. 3-7057

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 5
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 y
Edition : 27.02.91
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 036 085

Injection pump
Pump designation : PES6P120A720/3LS470-
2
EP type number : 0 412 026 055
Governor
Governor design. : RQV300...975/1100PA
991
Governor no. : 0 421 813 919

Customer-spec. information
Customer : MAN

Engine : D2866LF

1st version kW : 243.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

E17

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
(2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.30...11.40

Del.quantity cm3/ : 20.2...20.4

100 s: (19.9...20.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 4.6...5.0
Del.quantity cm3/ : 1.2...1.8
100 s: (0.9...2.1)
Spread cm3 : 0.8
100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1155
travel mm : 8.70...8.90
2nd speed rpm : 300
travel mm : 1.20...1.40
3rd speed rpm : 750
travel mm : 4.90...5.30
4th speed rpm : 1050
travel mm : 8.30...8.70
5th speed rpm : 1350
travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
Degree: 55...57
Speed rpm : 1050
Rack travel in mm : 11.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750
Aneroid pressure h: 1000
Del.quantity : 202.0...204.0
1000 : (199.0...207.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 9.80
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...24

Testing:
Speed rpm : 100
Minimum rack travel: 6.30
Speed rpm : 300
Rack travel in mm : 4.70...4.90

CONSTANT REGULATION
Speed rpm : 340...450

TORQUE CONTROL
Dimension a mm : 0.80
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 11.60...11.70
2nd speed rpm : 1100
Rack travel in m: 10.80...10.90
3rd speed rpm : 820
Rack travel in m: 11.30...11.40
4th speed rpm : 850
Rack travel in m: 10.90...11.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.30...11.40

Measurement
Speed 1/min : 500

1st pressure hPa : -

E18

Rack travel in m: 9.00...9.20
2nd pressure hPa : 85
Rack travel in m: 9.30...9.40
3rd pressure hPa : 280
Rack travel in m: 10.50...10.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm3/ : 205.0...209.0
1000 s: (202.0...212.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm3/ : 198.0...204.0
1000 s: (195.0...207.0)
Aneroid pressure h: 280
Speed rpm : 500
Del.quantity cm3/ : 184.0...196.0
1000 s: (181.0...199.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 132.0...134.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.80
Speed rpm : 1145...1160

INTERMEDIATE RATED SPEED

Control lever
position degrees: 261...269
Rack travel in mm : 10.00
Speed rpm : 740...760
Rack travel in mm : 4.00
Speed rpm : 825...845

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.60...5.00

Del.quantity cm³/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 3-7828

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 6
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 r2
Edition : 18.02.91
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 036 735

Injection pump
Pump designation : PES6P120A720/3LS3250
-1
EP type number : 0 412 026 742
Governor
Governor design. : RQ300/1000PA813-13
Governor no. : 0 421 801 529

Customer-spec. information
Customer : MAN

Engine : D2866LF03/LUHD1

1st version kW : 273.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

E20

Prestroke mm : 3.70...3.80
: (3.65...3.85)
Rack travel in mm : 14.50...15.50
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 5.90...6.10
& maximum rack tra: 14.5...15.5
Difference ° CS : 2.00...4.00

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 15.00...15.10

Del.quantity cm3/ : 24.2...24.4

100 s: (23.9...24.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.8...5.2

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 650

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del.quantity : 242.0...244.0

1000 : (239.0...247.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650
Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.00
Speed rpm : 1045...1060
2nd rack travel in: 4.00
Speed rpm : 1090...1120
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 15.00...15.10
2nd speed rpm : 700
Rack travel in m: 15.50...15.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 15.00...15.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.70...11.90
2nd pressure hPa : 110
Rack travel in m: 12.00...12.10
3rd pressure hPa : 470
Rack travel in m: 13.70...14.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1000
Del.quantity cm3/ : 241.0...247.0
1000 s: (238.0...250.0)
Speed rpm : 700
Del.quantity cm3/ : 82.0...102.0
1000 s: (79.0...105.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 134.0...136.0
1000 s: (131.0...139.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 14.00
Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 210.0...230.0
1000 s: (206.0...234.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.80...5.20
Del.quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 3-7050X

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 6
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 7,7 b
 Edition : 19.03.91
 Replaces : 1.3.91
 Test oil : ISO-4113

Combination no. : 0 402 046 343

Injection pump
 Pump designation : PES6P120A720RS3275
 EP type number : 0 412 026 745
 Governor
 Governor design. : RQV300...1100PA954-1
 K
 Governor no. : 0 421 815 273

Customer-spec. information
 Customer : IVECO-FIAT

Engine : 8360.46.016

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.80...12.90

Del.quantity cm3/ : 21.8...22.0

100 s: (21.5...22.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.0...4.4

Del.quantity cm3/ : 2.0...2.6

100 s: (1.7...2.9)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1145
 travel mm : 10.60...10.80

2nd speed rpm : 300
 travel mm : 1.00...1.40

3rd speed rpm : 850
 travel mm : 6.60...7.00

4th speed rpm : 1350
 travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 1500

Del.quantity : 218.0...220.0

1000 : (215.0...223.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 115...123

Testing:
1st rack travel in: 11.40
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 65...73

Testing:
Speed rpm : 100
Minimum rack travel: 5.70
Speed rpm : 300
Rack travel in mm : 4.10...4.30

CONSTANT REGULATION

Speed rpm : 340...450

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 12.80...12.90
2nd speed rpm : 1100
Rack travel in m: 12.30...12.50
3rd speed rpm : 750
Rack travel in m: 12.30...12.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 900
Pressure hPa : 1500
Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 900

1st pressure hPa : -
Rack travel in m: 8.40...8.60
2nd pressure hPa : 600
Rack travel in m: 11.70...11.80
3rd pressure hPa : 420
Rack travel in m: 9.40...9.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1100
Del.quantity cm3/ : 202.0...206.0
1000 s: (199.0...209.0)
Aneroid pressure h: 1500
Speed rpm : 750
Del.quantity cm3/ : 202.0...208.0
1000 s: (199.0...211.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 102.0...104.0
1000 s: (99.0...107.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.40
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 85.0...115.0
1000 s: (81.0...119.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.00...4.40
Del.quantity cm3/ : 20.0...26.0
1000 s: (17.0...29.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

Setting and blocking of position of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 y
Edition : 10.04.91
Replaces : 9.7.90
Test oil : ISO-4113

Combination no. : 0 402 076 723

Injection pump
Pump designation : PES6P120A720RS3203
EP type number : 0 412 026 728
Governor
Governor design. : RSV400...1100P2A534-
1
Governor no. : 0 421 833 276

Customer-spec. information
Customer : JOHN DEERE

Engine : 6076 AF & HF

1st version kW : 180.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X3.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
: (3.50...3.70)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.80...11.90

Del.quantity cm³/ : 15.0...15.2

100 s: (14.7...15.4)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0
Rack travel in mm : 5.5...5.7
Del.quantity cm³/ : 2.3...2.8
100 s: (2.1...3.1)
Spread cm³ : 0.6
100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h: 1200
Del.quantity : 150.0...152.0
1000 : (147.5...154.5)
Spread cm³ : 4.00
1000 : (6.50)

RATED SPEED

1st version
Control lever
position degrees: 40...48

Testing:

1st rack travel in: 10.80
Speed rpm : 1150...1160
2nd rack travel in: 4.00
Speed rpm : 1220...1230
3rd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.50...5.70

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.80...11.90
2nd speed rpm : 700
Rack travel in m: 12.60...12.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 12.60...12.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.40...10.60
2nd pressure hPa : 720
Rack travel in m: 11.00...11.10
3rd pressure hPa : 895
Rack travel in m: 11.80...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 700
Del.quantity cm³/ : 173.5...178.5
1000 s: (171.0...181.0)
Aneroid pressure h: -
Speed rpm : 800

Del.quantity cm³/ : 120.0...124.0
1000 s: (117.0...127.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.80
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 90.0...110.0
1000 s: (85.0...115.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 23.5...28.5
1000 s: (21.0...31.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE32033

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Start-of-delivery mark 10.5° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 g
 Edition : 15.11.90
 Replaces : 2.5.90
 Test oil : ISO-4113
 Combination no. : 0 402 076 730
 Injection pump
 Pump designation : PES6P110A720RS3217
 EP type number : 0 412 016 724
 Governor
 Governor design. : RSV550...1050P2A534-
 3
 Governor no. : 0 421 833 304

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6619AT07

1st version kW : 205.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness : 6.00X2.00X600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 12.10...12.20
 Del.quantity cm3/ : 18.3...18.5
 100 s: (18.1...18.8)
 Spread cm3 : 0.4
 100 s: (0.6)

2nd speed rpm : 550.0
 Rack travel in mm : 5.2...5.4
 Del.quantity cm3/ : 3.3...3.7
 100 s: (3.1...3.9)
 Spread cm3 : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Aneroid pressure h: 900
 Del.quantity : 183.5...185.5
 1000 : (181.0...188.0)
 Spread cm3 : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 41...49

Testing:

1st rack travel in: 11.10
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1180...1190
3rd rack travel in: 4.00
Speed rpm : 1195...1215
4th rack travel in: 1275
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 550
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 550
Rack travel in mm : 5.20...5.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.10...12.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.80
2nd pressure hPa : 295
Rack travel in m: 11.00...11.10
3rd pressure hPa : 510
Rack travel in m: 11.70...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 167.0...171.0
1000 s: (165.0...173.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 1095...1105

E27

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 180.0...200.0
1000 s: (175.0...205.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 550
Rack travel in mm : 5.20...5.40
Del.quantity cm3/ : 33.0...37.0
1000 s: (31.0...39.0)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE36078

Starting/full-load transition speed
from holding magnet = 450 1/min.

Start-of-delivery mark 10.5° cam angle
after start of delivery cyl. 1

APPLICATION

Excavator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 g1
 Edition : 15.11.90
 Replaces : 1.2.90
 Test oil : ISO-4113

Combination no. : 0 402 076 731

Injection pump
 Pump designation : PES6P110A72ORS3217
 EP type number : 0 412 016 724
 Governor
 Governor design. : RSV400...1050P2A534-
 4
 Governor no. : 0 421 833 305

Customer spec. information
 Customer : JOHN DEERE

Engine : 6101 H

1st version kW : 224.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.45...3.55
 : (3.40...3.60)

Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.10...13.20

Del. quantity cm3/ : 21.7...21.9

100 s: (21.4...22.1)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0

Del. quantity cm3/ : 2.6...3.1

100 s: (2.3...3.3)

Spread cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1200

Del. quantity : 217.0...219.0

1000 : (214.5...221.5)

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 36...44

Testing:

1st rack travel in: 12.10

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1170...1180

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever

position degrees: 14...22

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 5.4

Testing:

Speed rpm : 100

Minimum rack travel: 19.00

Speed rpm : 400

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 13.10...13.20

2nd speed rpm : 700

Rack travel in m: 14.10...14.30

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 1200

Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.90...11.10

2nd pressure hPa : 325

Rack travel in m: 11.60...11.70

3rd pressure hPa : 640

Rack travel in m: 12.90...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 700

Del.quantity cm³/ : 233.5...238.5
1000 s: (231.0...241.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 160.0...164.0
1000 s: (157.0...167.0)

BREAKAWAY

1st version

F01

1mm rack travel less than

full load rack tr: 12.10

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 165.0...185.0

1000 s: (160.0...190.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.80...6.00

Del.quantity cm³/ : 26.0...31.0

1000 s: (23.5...33.5)

Spread cm³ : 6.00

1000 s: (8.00)

Remarks:

: JOHN DEERE # RE36881

Adjustment without torque-control

spring retainer with 0,5 mm less

control-rod travel. Increase in

full-load delivery with torque-control

spring retainer.

Starting/full-load transition speed

from holding magnet = 450 1/min.

Start-of-delivery mark 10.5° cam angle

after start of delivery cyl. 1

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 g2
 Edition : 10.04.91
 Replaces : 18.2.91
 Test oil : ISO-4113
 Combination no. : 0 402 076 739
 Injection pump
 Pump designation : PES6P110A720RS3217
 EP type number : 0 412 016 724
 Governor
 Governor design. : RSV400...1050P2A549
 Governor no. : 0 421 833 350

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6101 HRWD1

1st version kW : 230.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 3.35...3.45
 : (3.30...3.50)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 12.90...13.00
 Del.quantity cm3/ : 20.8...21.0
 100 s: (20.6...21.2)
 Spread cm3 : 0.4
 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.7...5.9
 Del.quantity cm3/ : 2.0...2.4
 100 s: (1.7...2.6)
 Spread cm3 : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Aneroid pressure h: 1200
 Del.quantity : 208.5...210.5
 1000 : (206.5...212.5)
 Spread cm3 : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 38...46

Testing:

1st rack travel in: 11.90
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1165...1175
3rd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.3

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.70...5.90

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.90...13.00
2nd speed rpm : 700
Rack travel in m: 13.80...14.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.80...14.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.00...11.20
2nd pressure hPa : 385
Rack travel in m: 11.80...11.90
3rd pressure hPa : 640
Rack travel in m: 12.80...13.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 700
Del.quantity cm³/ : 214.5...218.5
1000 s: (212.5...220.5)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 156.0...160.0
1000 s: (154.0...162.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...180.0
1000 s: (155.0...185.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 20.0...24.0
1000 s: (17.5...26.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE47354
Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Sweeping machine

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 y 2
 Edition : 19.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 742
 Injection pump
 Pump designation : PES6P12QA720RS3203
 EP type number : 0 412 026 728
 Governor
 Governor design. : RSV400...1050P2A534-
 7
 Governor no. : 0 421 833 356

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076 HZ030

1st version kW : 193.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.10...12.20

Del.quantity cm3/ : 15.4...15.6

100 s: (15.2...15.8)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 3.1...3.5
 100 s: (2.8...3.7)

Spread cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 900

Del.quantity : 154.5...156.5

1000 : (152.5...158.5)

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 11.10
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1155...1165
3rd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.10...12.20
2nd speed rpm : 700
Rack travel in m: 13.40...13.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.40...13.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.70
2nd pressure hPa : 375
Rack travel in m: 11.20...11.60
3rd pressure hPa : 590
Rack travel in m: 12.80...12.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm3/ : 189.5...193.5
1000 s: (187.5...195.5)
Aneroid pressure h: -
Speed rpm : 800

Del.quantity cm3/ : 116.5...120.5
1000 s: (114.5...122.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 90.0...110.0
1000 s: (85.0...115.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 31.0...35.0
1000 s: (28.5...37.5)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE47549

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PER 16,3 b
Edition : 19.03.91
Replaces : 5.10.90
Test oil : ISO-4113

Combination no. : 0 402 638 803

Injection pump
Pump designation : PE8P120A120RS7141
EP type number : 0 412 628 823
Governor
Governor design. : RQ750PA871
Governor no. : 0 421 801 404

Customer-spec. information
Customer : PERKINS

Engine : CV8-320 G

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60
: (4.45...4.65)
Rack travel in mm : 9.00...12.00

F06

Firing order : 1- 3- 6- 5- 4- 8-
7- 2

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.40...14.50

Del.quantity cm³/ : 33.3...33.5

100 s: (33.0...33.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 7.5...7.7

Del.quantity cm³/ : 3.6...4.2

100 s: (3.3...4.5)

Spread cm³ : 0.8

100 s: (1.2)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 333.0...335.0

1000 : (330.0...338.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 77...85

Testing:

1st rack travel in: 13.40

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 795...805

4th rack travel in: 900

Speed rpm : 0.00...1.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.40

Speed rpm : 750...755

Remarks:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PER 16,3 d
Edition : 22.03.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 638 805
Injection pump
Pump designation : PE8P120A120RS7199
EP type number : 0 412 628 843
Governor
Governor design. : RQ750PA871
Governor no. : 0 421 801 404

Customer spec. information
Customer : PERKINS (RR)

Engine : CV8-360 G

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00

F08

Firing order : 1- 3- 6- 5- 4- 8-
7- 2

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
Rack travel in mm : 13.00...13.10
Del.quantity cm3/ : 36.2...36.4
100 s: (35.9...36.7)
Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 4.9...5.1
Del.quantity cm3/ : 3.6...4.2
100 s: (3.3...4.5)
Spread cm3 : 0.8
100 s: (1.2)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Del.quantity : 362.0...364.0
1000 : (359.0...367.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 87...95

Testing:
1st rack travel in: 12.00
Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 775...785
4th rack travel in: 900
Speed rpm : 0.00...1.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 750...755

Remarks:

APPLICATION :

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PER 16,3 d1
Edition : 05.03.90
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 638 805
Injection pump
Pump designation : PE8P120A120RS7199
EP type number : 0 412 628 843
Governor
Governor design. : RQ750PA871-1
Governor no. : 0 421 801 515

Customer-spec. information
Customer : PERKINS

Engine : CV8-360 G

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025
Inlet press., bar : 1.50
Test nozzle holder
assembly : 1 688 901 019
Opening
pressure, bar : 207...210
Orifice plate
diameter mm : 0,8
Test lines : 1 680 750 067
Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000
(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00

F10

Firing order : 1- 3- 6- 5- 4- 8-
7- 2

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
Rack travel in mm : 13.00...13.10
Del.quantity cm3/ : 36.2...36.4
100 s: (35.9...36.7)
Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 4.9...5.1
Del.quantity cm3/ : 3.6...4.2
100 s: (3.3...4.5)
Spread cm3 : 0.8
100 s: (1.2)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Del.quantity : 362.0...364.0
1000 : (359.0...367.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 90...98

Testing:
1st rack travel in: 12.00
Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 770...780
4th rack travel in: 900
Speed rpm : 0.00...1.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00

Speed rpm : 750...755

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 21,9 v 1
 Edition : 28.03.91
 Replaces : 4.5.90
 Test oil : ISO-4113
 Combination no. : 0 402 640 806
 Injection pump
 Pump designation : PE12P120A320LS7806
 EP type number : 0 412 620 805
 Governor
 Governor design. : RQV350...1000PA835-1
 Governor no. : 0 421 813 590

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 444 LA

1st version kW : 419.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 150...170

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 12- 1- 5- 9- 8- 3-
 : 4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-
 : 180-225-240-285-300-
 : 345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.30...13.50

Del.quantity cm3/ : 18.7...18.9

100 s: (18.4...19.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.2

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.90...2.10

2nd speed rpm : 700
 travel mm : 4.90...5.30

3rd speed rpm : 1050
 travel mm : 8.00...8.40

4th speed rpm : 1110
 travel mm : 9.20...9.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1050

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
Aneroid pressure h: 650
Del.quantity : 187.0...189.0
1000 : (184.0...192.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 115...123

Testing:

1st rack travel in: 11.70
Speed rpm : 1045...1060
2nd rack travel in: 4.00
Speed rpm : 1110...1140
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 64...72

Testing:

Speed rpm : 200
Minimum rack trave: 7.50
Speed rpm : 350
Rack travel in mm : 5.90...6.30

CONSTANT REGULATION

Speed rpm : 400...600

TORQUE CONTROL

Dimension a mm : 0.60
2nd speed rpm : 1000
Rack travel in m: 12.70...12.90
3rd speed rpm : 915
Rack travel in m: 13.00...13.20
4th speed rpm : 800
Rack travel in m: 13.30...13.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 650
Rack travel mm : 13.30...13.50

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.50...11.70
2nd pressure hPa : 420

F13

Rack travel in m: 12.60...12.80
3rd pressure hPa : -
Rack travel in m: 10.60...10.90

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1000
Del.quantity cm³/ : 182.0...186.0
1000 s: (179.0...189.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm³/ : 196.0...200.0
1000 s: (193.0...203.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 125.0...129.0
1000 s: (122.0...132.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...190.0
1000 s: (166.0...194.0)

Remarks:

APPLICATION

Rail car

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 21,9 j 2
Edition : 28.03.91
Replaces : 18.2.91
Test oil : ISO-4113

Combination no. : 0 402 640 825

Injection pump
Pump designation : PE12P120A320LS7813-2
EP type number : 0 412 620 826
Governor
Governor design. : RQ900PA966-2
Governor no. : 0 421 801 571

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM 444 LA

1st version kW : 529.0
Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 150...170

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 19.00...21.00
Firing order : 12- 1- 5- 9- 8- 3-
4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-
180-225-240-285-300-
345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 16.50...16.60

Del.quantity cm3/ : 28.0...28.2

100 s: (27.7...28.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 880

travel mm : 1.40...1.80

2nd speed rpm : 940

travel mm : 5.50...5.90

3rd speed rpm : 1000

travel mm : 11.10...11.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 280.0...282.0

1000 : (277.0...285.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 86...94

Testing:
1st rack travel in: 15.50
Speed rpm : 905...910
2nd rack travel in: 4.00
Speed rpm : 950...960
4th rack travel in: 1000
Speed rpm : 0.00...1.00

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 15.50
Speed rpm : 905...910

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 270.0...290.0
1000 s: (266.0...294.0)

Remarks:

:

Observe VDT-I-420/120

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 21,9 j 3
Edition : 28.03.91
Replaces : 18.2.91
Test oil : ISO-4113

Combination no. : 0 402 640 826

Injection pump
Pump designation : PE12P120A320LS7813-2
EP type number : 0 412 620 826
Governor
Governor design. : RQ750PA966-3
Governor no. : 0 421 801 572

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM 444 LA

1st version kW : 441.0
Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 150...170

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 19.00...21.00
Firing order : 12- 1- 5- 9- 8- 3-
4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-
180-225-240-285-300-
345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 16.00...16.10

Del.quantity cm3/ : 28.0...28.2

100 s: (27.7...28.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 740
travel mm : 3.00...3.40

2nd speed rpm : 780
travel mm : 6.40...6.80

3rd speed rpm : 820
travel mm : 10.70...11.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Del.quantity : 280.0...282.0
1000 : (277.0...285.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 86...94

Testing:
1st rack travel in: 15.00
Speed rpm : 755...760
2nd rack travel in: 4.00
Speed rpm : 780...790
4th rack travel in: 1000
Speed rpm : 0.00...1.00

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 15.00
Speed rpm : 755...760

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 270.0...290.0
1000 s: (266.0...294.0)

Remarks:

:

Observe VDT-I-420/120

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 21,0 e2
Edition : 28.03.91
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 640 833

Injection pump
Pump designation : PE12P120A520LS7829-1
EP type number : 0 412 620 827
Governor
Governor design. : RQV300...1150PA943-1
Governor no. : 0 421 813 869

Customer-spec. information
Customer : MAN

Engine : D2842LZE

1st version kW : 809.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60
: (4.45...4.65)
Rack travel in mm : 9.00...12.00
Firing order : 12- 1- 5- 9- 8- 3-
4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-
180-225-240-285-300-
Phasing : 345
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 1150
Rack travel in mm : 13.80...13.90
Del.quantity cm3/ : 30.4...30.6
100 s: (30.1...30.9)
Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 500
Rack travel in mm : 9.00...9.20
Del.quantity cm3/ : 14.9...15.1
100 s: (14.6...15.4)
Spread cm3 : 0.8
100 s: (1.2)
3rd speed rpm : 300
Rack travel in mm : 7.30...7.50
Del.quantity cm3/ : 5.2...5.6 *
100 s: (-)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.20...1.60
2nd speed rpm : 450
travel mm : 2.90...3.50
3rd speed rpm : 750
travel mm : 5.70...6.10
4th speed rpm : 1150
travel mm : 9.50...9.70
5th speed rpm : 1400
travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1225
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150
Aneroid pressure h: 1300
Del.quantity : 304.0...306.0
1000 : (301.0...309.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 116...124

Testing:

1st rack travel in: 12.80
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 76...84

Testing:

Speed rpm : 100
Minimum rack travel: 8.90
Speed rpm : 300
Rack travel in mm : 7.30...7.50

CONSTANT REGULATION

Speed rpm : 280...410

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1300
Rack travel mm : 13.80...13.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.00...9.20
2nd pressure hPa : 100
Rack travel in m: 9.50...9.60
3rd pressure hPa : 470
Rack travel in m: 12.40...12.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 149.0...151.0
1000 s: (146.0...154.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.80
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...120.0 *
1000 s: (-)

Speed rpm : 100
Del.quantity cm3/ : - **
1000 s: (-)
Rack travel in mm : 17.5...21.0

HIGH IDLE

1st version

Speed rpm : 500
Rack travel in mm : < 7.00
Del.quantity cm3/ : - **
1000 s: (-)

2nd version

Speed rpm : 500
Rack travel in mm : < 7.50
Del.quantity cm3/ : < 50.0
1000 s: (-)

3rd version

Speed rpm : 500
Rack travel in mm : 8.50...8.70
Del.quantity cm3/ : 125.0...
1000 s: (-)

Remarks:

: MAN-NR. 3-7156

* applies to cylinders 4, 5, 6, 8, 10
and 12

** applies for cylinders 1, 2, 3, 7, 9

and 11

APPLICATION

Ship



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 t 2
Edition : 19.03.91
Replaces : 30.3.90
Test oil : ISO-4113

Combination no. : 0 402 646 843

Injection pump
Pump designation : PE6P120A320LS7808
EP type number : 0 412 626 816
Governor
Governor design. : RQV300...1050PA797-2
Governor no. : 0 421 813 614

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 240.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.90...14.10

Del.quantity cm3/ : 21.2...21.4
100 s: (20.9...21.7)

Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 5.7...6.0
Del.quantity cm3/ : 1.3...1.9
100 s: (1.0...2.2)
Spread cm3 : 0.6
100 s: (1.0)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.20...1.40
2nd speed rpm : 600
travel mm : 4.90...5.10
3rd speed rpm : 1075
travel mm : 7.40...7.60
4th speed rpm : 1100
travel mm : 8.00...8.40
5th speed rpm : 1150
travel mm : 9.00...9.40

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1125
Rack travel in mm : 15.80...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 900
Del.quantity : 212.0...214.0
1000 : (209.0...217.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 13.80
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 81...89

Testing:
Speed rpm : 200
Minimum rack trave: 7.90
Speed rpm : 300
Rack travel in mm : 5.70...6.00

CONSTANT REGULATION
Speed rpm : 300...450

TORQUE CONTROL
Dimension a mm : 0.30
2nd speed rpm : 1050
Rack travel in m: 14.80...15.00
3rd speed rpm : 800
Rack travel in m: 15.00...15.20
4th speed rpm : 700

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.90...14.10

Measurement
Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 10.70...10.90
2nd pressure hPa : 550
Rack travel in m: 12.80...13.10

3rd pressure hPa : 1050
Rack travel in m: 14.00...14.10 *
4th pressure hPa : 1150
Rack travel in m: 14.45...14.60
5th pressure hPa : -
Rack travel in m: 9.00...9.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1450
Speed rpm : 1050
Del.quantity cm3/ : 231.0...234.0
1000 s: (228.0...237.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1450
Speed rpm : 800
Del.quantity cm3/ : 235.0...239.0
1000 s: (232.0...242.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 128.0...130.0
1000 s: (125.0...133.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.80
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 200.0...220.0
1000 s: (196.0...224.0)
Rack travel in mm : 200.00...220.00

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 k6
Edition : 22.03.91
Replaces : 18.2.91
Test oil : ISO-4113

Combination no. : 0 402 646 894

Injection pump
Pump designation : PE6P120A32ORS7194
EP type number : 0 412 626 834
Governor
Governor design. : RQ250/1000PA936
Governor no. : 0 421 801 507

Customer-spec. information
Customer : DAF

Engine : WS 295

1st version kW : 295.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 13.70...13.80

Del.quantity cm3/ : 23.9...24.1

100 s: (23.6...24.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 7.6...8.0

Del.quantity cm3/ : 2.2...2.8

100 s: (1.9...3.1)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del.quantity : 239.0...241.0

1000 : (236.0...244.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 15.8

Testing:

1st rack travel in: 12.70

Speed rpm : 1035...1050
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1250
Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 7.0

Testing:

Speed rpm : 100
Minimum rack travel: 8.20
Speed rpm : 250
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 345...385

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 14.70...14.80
2nd speed rpm : 1000
Rack travel in m: 14.60...14.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 13.70...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 11.00...11.20
2nd pressure hPa : 460
Rack travel in m: 13.00...13.10
3rd pressure hPa : 310
Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 165.0...167.0
1000 s: (162.0...170.0)

BREAKAWAY

1st version

F24

1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 1035...1050

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.90...7.10

Remarks:

:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 k4
 Edition : 22.03.91
 Replaces : 16.11.90
 Test oil : ISO-4113
 Combination no. : 0 402 646 896
 Injection pump
 Pump designation : PE6P120A32ORS7194
 EP type number : 0 412 626 834
 Governor
 Governor design. : RGV250...1000PA939
 Governor no. : 0 421 813 829

Customer-spec. information
 Customer : DAF

Engine : WS 295

1st version kW : 295.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.25)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 13.70...13.80

Del. quantity cm3/ : 23.9...24.1

100 s: (23.6...24.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 7.6...8.0

Del. quantity cm3/ : 2.2...2.8

100 s: (1.9...3.1)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 0.70...1.10

2nd speed rpm : 400

travel mm : 2.40...3.20

3rd speed rpm : 800

travel mm : 5.20...5.60

4th speed rpm : 1000

travel mm : 7.30...7.50

5th speed rpm : 1300

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del.quantity : 239.0...241.0
1000 : (236.0...244.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 115...123

Testing:
1st rack travel in: 12.70
Speed rpm : 1030...1040
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.40

LOW IDLE 1
Control lever
position degrees: 81...89

Testing:
Speed rpm : 100
Minimum rack trave: 8.20
Speed rpm : 250
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION
Speed rpm : 275...385

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 13.70...13.80

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 11.00...11.20
2nd pressure hPa : 460
Rack travel in m: 13.00...13.10
3rd pressure hPa : 310
Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 165.0...167.0
1000 s: (162.0...170.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 1030...1040

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.90...7.10

Remarks:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,1 c
Edition : 28.03.91
Replaces : 1.2.91
Test oil : ISO-4113

Combination no. : 0 402 646 921

Injection pump
Pump designation : PE6P12QA320LS7837
EP type number : 0 412 626 842
Governor
Governor design. : RQ300/1050PA972-3
Governor no. : 0 421 801 565

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.70...14.90

Del.quantity cm3/ : 23.3...23.5

100 s: (23.0...23.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 233.0...235.0

1000 : (230.0...238.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.50
Speed rpm : 1090...1105
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1200
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 200
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 5.60...6.20
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

2nd speed rpm : 1050
Rack travel in m: 15.50...15.70
3rd speed rpm : 800
Rack travel in m: 15.60...15.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 100
Rack travel mm : 14.70...14.90

Measurement

Speed 1/min : 600

1st pressure hPa : 200
Rack travel in m: 10.00...10.20
2nd pressure hPa : 600
Rack travel in m: 13.50...13.70
3rd pressure hPa : 1250
Rack travel in m: 14.80...15.00 *
4th pressure hPa : 1450
Rack travel in m: 15.40...15.60
5th pressure hPa : -
Rack travel in m: 9.30...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800
Speed rpm : 1050
Del.quantity cm3/ : 251.0...254.0
1000 s: (248.0...257.0)

Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1800
Speed rpm : 800
Del.quantity cm3/ : 250.0...254.0
1000 s: (247.0...257.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 135.0...137.0
1000 s: (132.0...140.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 14.50
Speed rpm : 1090...1105

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 9,6 o 2
Edition : 22.03.91
Replaces : 14.12.90
Test oil : ISO-4113

Combination no. : 0 402 646 922

Injection pump
Pump designation : PE6P120A320LS7834
EP type number : 0 412 626 841
Governor
Governor design. : RQ300/1050PA972-2
Governor no. : 0 421 801 556

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 213.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
(5.45...5.65)
Rack travel in mm : 20.00...21.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600
Rack travel in mm : 13.90...14.10
Del.quantity cm3/ : 19.9...20.1
100 s: (19.6...20.4)
Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 6.4...7.0
Del.quantity cm3/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm3 : 0.6
100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -2
Speed rpm : 600
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 800
Del.quantity : 199.0...201.0
1000 : (196.0...204.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.00
Speed rpm : 1090...1105
2nd rack travel in: 4.00
Speed rpm : 1175...1205
4th rack travel in: 13.00
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.7

Testing:

Speed rpm : 200
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.40...7.00
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?
2nd speed rpm : 1050
Rack travel in m: 14.00...14.20
3rd speed rpm : 800
Rack travel in m: 14.40...14.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.00...13.20

Measurement

Speed 1/min : 600

1st pressure hPa : 250
Rack travel in m: 9.40...9.60
2nd pressure hPa : 550
Rack travel in m: 12.20...12.40
3rd pressure hPa : 1050
Rack travel in m: 13.10...13.30 *
4th pressure hPa : -
Rack travel in m: 9.00...9.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050
Del.quantity cm3/ : 207.0...210.0
1000 s: (204.0...213.0)

Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm3/ : 218.0...222.0
1000 s: (215.0...225.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 118.0...120.0
1000 s: (115.0...123.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 1090...1105

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 13,8 h
Edition : 22.03.91
Replaces : 1.3.91
Test oil : ISO-4113

Combination no. : 0 402 646 923

Injection pump
Pump designation : PE6P130A720RS7225
EP type number : 0 412 636 817
Governor
Governor design. : RQV300...900PA946
Governor no. : 0 421 813 845

Customer spec. information
Customer : IVECO-UNIC

Engine : 8210.42.061

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)

Rack travel in mm : 11.50...12.50

G03

Firing order : 1- 5- 3- 5- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.60...11.70

Del.quantity cm³/ : 27.0...27.3

100 s: (26.6...27.6)

Spread cm³ : 0.6

100 s: (1.0)

2nd speed rpm : 300.0

Rack travel in mm : 3.4...3.8

Del.quantity cm³/ : 1.9...2.5

100 s: (1.5...2.9)

Spread cm³ : 1.0

100 s: (1.4)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 945

travel mm : 8.40...8.60

2nd speed rpm : 300

travel mm : 1.00...1.40

3rd speed rpm : 500

travel mm : 3.30...3.90

4th speed rpm : 700

travel mm : 5.50...5.90

5th speed rpm : 1200

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 935

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 900

Del.quantity : 270.0...273.0

1000 : (266.5...276.5)

Spread cm3 : 6.00
1000 : (10.00)

RATED SPEED

1st version
Control lever
position degrees: 72...80

Testing:
1st rack travel in: 10.60
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 1010...1040
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 76...84

Testing:
Speed rpm : 100
Minimum rack travel: 5.10
Speed rpm : 300
Rack travel in mm : 3.50...3.70

CONSTANT REGULATION
Speed rpm : 320...440

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 11.60...11.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.10
2nd pressure hPa : 350
Rack travel in m: 11.00...11.10
3rd pressure hPa : 285
Rack travel in m: 9.50...9.90

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 500
Del.quantity cm3/ : 285.0...292.0
1000 s: (281.5...295.5)
Aneroid pressure h: -
Speed rpm : 500

GO4

Del.quantity cm3/ : 202.0...205.0
1000 s: (198.5...208.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.60
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 300.0...330.0
1000 s: (296.0...334.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.40...3.80
Del.quantity cm3/ : 19.0...25.0
1000 s: (15.0...29.0)
Spread cm3 : 10.00
1000 s: (14.00)

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,1 b
Edition : 28.03.91
Replaces : 25.1.91
Test oil : ISO-4113

Combination no. : 0 402 646 925

Injection pump
Pump designation : PE6P120A320LS7837
EP type number : 0 412 626 842
Governor
Governor design. : RGV300...950PA797-20
Governor no. : 0 421 813 893

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
(5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.70...14.90

Del.quantity cm3/ : 23.3...23.5

100 s: (23.0...23.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 5.6...6.2
Del.quantity cm3/ : 1.6...2.2
100 s: (1.3...2.5)

Spread cm3 : 0.6
100 s: (1.0)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.00...1.50
2nd speed rpm : 567
travel mm : 4.40...4.90
3rd speed rpm : 780
travel mm : 6.10...6.60
4th speed rpm : 1009
travel mm : 8.30...8.80
5th speed rpm : 1190
travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1025
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
Aneroid pressure h: 1000
Del.quantity : 233.0...235.0
1000 : (230.0...238.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 120...128

Testing:

1st rack travel in: 14.50
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1085...1115
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 82...90

Testing:

Speed rpm : 200
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 5.60...6.20

CONSTANT REGULATION

Speed rpm : 300...450

TORQUE CONTROL

Dimension a mm : 0.10
2nd speed rpm : 950
Rack travel in m: 15.50...15.70
3rd speed rpm : 800
Rack travel in m: 15.60...15.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.70...14.90

Measurement

Speed 1/min : 600

1st pressure hPa : 200
Rack travel in m: 10.00...10.20
2nd pressure hPa : 600
Rack travel in m: 13.50...13.70
3rd pressure hPa : 1250

G06

Rack travel in m: 14.80...15.00 *
4th pressure hPa : 1450
Rack travel in m: 15.40...15.60
5th pressure hPa : -
Rack travel in m: 9.30...9.50

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1700
Speed rpm : 950
Del.quantity cm³/ : 251.0...254.0
1000 s: (248.0...257.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1700
Speed rpm : 800
Del.quantity cm³/ : 250.0...254.0
1000 s: (247.0...257.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 135.0...137.0
1000 s: (132.0...140.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 14.50
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 250.0...270.0
1000 s: (246.0...274.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 9,6 o 4
 Edition : 19.03.91
 Replaces : 27.2.91
 Test oil : ISO-4113
 Combination no. : 0 402 646 930
 Injection pump
 Pump designation : PE6P120A320LS7834
 EP type number : 0 412 626 841
 Governor
 Governor design. : RQ300/1050PA972-7
 Governor no. : 0 421 801 583

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.20...15.40

Del.quantity cm3/ : 23.1...23.3

100 s: (22.8...23.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.7...7.1

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 231.0...233.0

1000 : (228.0...236.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.30
Speed rpm : 1090...1105
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.9

Testing:

Speed rpm : 200
Minimum rack travel: 8.70
Speed rpm : 300
Rack travel in mm : 6.70...7.10
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?
2nd speed rpm : 1050
Rack travel in m: 15.30...15.50
3rd speed rpm : 800
Rack travel in m: 15.90...16.10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 15.20...15.40

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 10.20...10.40
2nd pressure hPa : 750
Rack travel in m: 14.20...14.40
3rd pressure hPa : 1400
Rack travel in m: 15.30...15.50 *
4th pressure hPa : -
Rack travel in m: 9.70...10.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1700
Speed rpm : 1050
Del.quantity cm3/ : 232.0...235.0
1000 s: (229.0...238.0)

Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1700
Speed rpm : 800
Del.quantity cm3/ : 245.0...248.0
1000 s: (242.0...251.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 122.0...124.0
1000 s: (119.0...127.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 14.30
Speed rpm : 1090...1105

Remarks:

:
* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,7 b
Edition : 22.03.91
Replaces : 1.3.91
Test oil : ISO-4113
Combination no. : 0 402 646 933
Injection pump
Pump designation : PE6P120A320RS7228
EP type number : 0 412 626 845
Governor
Governor design. : RQ275/1150PA987
Governor no. : 0 421 801 578

Customer-spec. information
Customer : DAF

Engine : RS 222

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 13.80...14.80

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 5.50...5.70
& maximum rack tra: 13.8...14.8
Difference ° CS : 3.25...4.75

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 14.30...14.40
Del. quantity cm³/ : 17.7...17.9
100 s: (17.4...18.2)
Spread cm³ : 0.5
100 s: (0.9)

2nd speed rpm : 275.0
Rack travel in mm : 6.6...6.8
Del. quantity cm³/ : 1.3...1.9
100 s: (1.0...2.2)
Spread cm³ : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 550
Rack travel in mm : 15.40...16.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Aneroid pressure h: 1000
Del. quantity : 177.0...179.0
1000 : (174.0...182.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Setting point:
Speed rpm : 550
Rack travel in mm : 16.0

Testing:

1st rack travel in: 13.30
Speed rpm : 1185...1200
2nd rack travel in: 4.00
Speed rpm : 1270...1300
4th rack travel in: 1450
Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack trave: 7.10
Speed rpm : 275
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 330...370

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.30...14.40

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 12.60...12.80
2nd pressure hPa : 470
Rack travel in m: 13.90...14.00
3rd pressure hPa : 350
Rack travel in m: 13.00...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 110.0...120.0
1000 s: (106.0...124.0)
Spread cm3 : 10.00
1000 s: (14.00
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 141.0...143.0
1000 s: (138.0...146.0)

BREAKAWAY

1st version

G10

1mm rack travel less than

full load rack tr: 13.30
Speed rpm : 1185...1200

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.50...5.70

Remarks:

:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 n
Edition : 19.03.91
Replaces : 1.3.91
Test oil : ISO-4113

Combination no. : 0 402 646 936

Injection pump
Pump designation : PE6P120A32ORS7230
EP type number : 0 412 626 843
Governor
Governor design. : RQV250...1000PA990K
Governor no. : 0 421 815 274

Customer-spec. information
Customer : DAF

Engine : WS 315

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)

Rack travel in mm : 13.80...14.80

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 12.80...12.90

Del.quantity cm3/ : 27.7...27.9

100 s: (27.4...28.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.30...1.70

2nd speed rpm : 285

travel mm : 2.10...2.50

3rd speed rpm : 1030

travel mm : 9.60...10.00

4th speed rpm : 1145

travel mm : 11.20...11.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1070

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550

Aneroid pressure h: 1500

Del.quantity : 277.0...279.0

1000 : (274.0...282.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 115...123

Testing:
1st rack travel in: 13.30
Speed rpm : 1030...1040
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1275
Speed rpm : 0.00...1.40

LOW IDLE 1
Control lever
position degrees: 70...78

Testing:
Speed rpm : 100
Minimum rack travel: 7.40
Speed rpm : 250
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 355...395

CONSTANT REGULATION
Speed rpm : 285...335

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 550
Rack travel in m: 12.80...12.90
2nd speed rpm : 700
Rack travel in m: 13.10...13.30
3rd speed rpm : 850
Rack travel in m: 13.90...14.10
4th speed rpm : 980
Rack travel in m: 14.70...14.90

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 980
Pressure hPa : 1500
Rack travel mm : 14.40...14.50

Measurement
Speed 1/min : 980

1st pressure hPa : -
Rack travel in m: 8.80...9.00
2nd pressure hPa : 600
Rack travel in m: 11.80...11.90
3rd pressure hPa : 330
Rack travel in m: 10.00...10.20

FUEL DELIVERY CHARACTERISTICS

G12

1st version
Aneroid pressure h: 1500
Speed rpm : 980
Del.quantity cm3/ : 270.0...274.0
1000 s: (267.0...277.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 162.0...164.0
1000 s: (159.0...167.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.30
Speed rpm : 1030...1040

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 14.0...20.0
1000 s: (11.0...23.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 L2
 Edition : 22.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 941
 Injection pump
 Pump designation : PE6P120A32ORS7218Z
 EP type number : 0 412 626 847
 Governor
 Governor design. : RQ250/1000PA936-1
 Governor no. : 0 421 801 508

Customer-spec. information
 Customer : DAF

Engine : WS 222 G

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness : 8.00X2.50X1000
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.30...5.40
 : (5.25...5.45)
 Rack travel in mm : 13.10...14.10

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 13.1...14.1
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 13.60...13.70

Del.quantity cm3/ : 19.6...19.8

100 s: (19.3...20.1)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.5...6.7

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del.quantity : 196.0...198.0

1000 : (193.0...201.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 15.8

Testing:

1st rack travel in: 12.60
Speed rpm : 1035...1050
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...2.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 250
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 310...350

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 14.60...14.70
2nd speed rpm : 990
Rack travel in m: 14.50...14.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 13.60...13.70

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 12.30...12.50
2nd pressure hPa : 390
Rack travel in m: 13.30...13.40
3rd pressure hPa : 310
Rack travel in m: 12.70...12.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 161.0...163.0
1000 s: (158.0...166.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1035...1050

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.90...5.10

Remarks:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,1 d
 Edition : 19.03.91
 Replaces : 1.3.91
 Test oil : ISO-4113
 Combination no. : 0 402 646 942
 Injection pump
 Pump designation : PE6P120A320LS7837
 EP type number : 0 412 626 842
 Governor
 Governor design. : RQ300/1050PA993
 Governor no. : 0 421 801 581

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm³/ : 21.1...21.3

100 s: (20.8...21.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.7...6.0

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 211.0...213.0

1000 : (208.0...216.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.90
Speed rpm : 1090...1105
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1200
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.8

Testing:

Speed rpm : 200
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 5.70...6.00
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?
2nd speed rpm : 1050
Rack travel in m: 14.90...15.10
3rd speed rpm : 800
Rack travel in m: 15.00...15.20

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : 200
Rack travel in m: 10.00...10.20
2nd pressure hPa : 500
Rack travel in m: 12.70...12.90
3rd pressure hPa : 1000
Rack travel in m: 13.90...14.10
4th pressure hPa : 1200
Rack travel in m: 14.50...14.70
5th pressure hPa : -
Rack travel in m: 8.80...9.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050

Del.quantity cm3/ : 242.0...245.0
1000 s: (239.0...248.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm3/ : 244.0...248.0
1000 s: (241.0...251.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 135.0...137.0
1000 s: (132.0...140.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.90
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 t10
Edition : 19.03.91
Replaces : 1.2.91
Test oil : ISO-4113

Combination no. : 0 402 646 943

Injection pump
Pump designation : PE6P120A320S7808
EP type number : 0 412 626 816
Governor
Governor design. : RQV300...950PA795-28
Governor no. : 0 421 813 925

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.90...14.10

Del.quantity cm3/ : 22.1...22.3

100 s: (21.8...22.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.7...6.0

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.00...1.50

2nd speed rpm : 567
travel mm : 4.40...4.90

3rd speed rpm : 780
travel mm : 6.10...6.60

4th speed rpm : 1009
travel mm : 8.30...8.80

5th speed rpm : 1092
travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1090

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
Aneroid pressure h: 950
Del.quantity : 221.0...223.0
1000 : (218.0...226.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 95...103

Testing:

1st rack travel in: 14.10
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 69...77

Testing:

Speed rpm : 200
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 5.70...6.00

CONSTANT REGULATION

Speed rpm : 300...500

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.90...14.10

Measurement

Speed 1/min : 600

1st pressure hPa : 350
Rack travel in m: 10.70...10.90
2nd pressure hPa : 600
Rack travel in m: 12.80...13.00
3rd pressure hPa : 1150
Rack travel in m: 14.20...14.40
4th pressure hPa : 1250
Rack travel in m: 14.70...14.90
5th pressure hPa : -
Rack travel in m: 9.20...9.50

FUEL DELIVERY CHARACTERISTICS

G18

1st version

Aneroid pressure h: 1550
Speed rpm : 950
Del.quantity cm3/ : 251.0...254.0
1000 s: (248.0...257.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1550
Speed rpm : 750
Del.quantity cm3/ : 242.0...246.0
1000 s: (239.0...249.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 138.0...140.0
1000 s: (135.0...143.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.10
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 210.0...230.0
1000 s: (206.0...234.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 13,8 h1
Edition : 22.03.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 646 946
Injection pump
Pump designation : PE6P130A720RS7225
EP type number : 0 412 636 817
Governor
Governor design. : RQV300...975PA1002K
Governor no. : 0 421 815 279

Customer-spec. information
Customer : IVECO-UNIC

Engine : 8210.42.009

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)

Rack travel in mm : 11.50...12.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 975

Rack travel in mm : 11.90...12.00

Del.quantity cm3/ : 26.9...27.2

100 s: (26.5...27.5)

Spread cm3 : 0.6

100 s: (1.0)

2nd speed rpm : 300.0

Rack travel in mm : 3.4...3.8

Del.quantity cm3/ : 1.9...2.5

100 s: (1.5...2.9)

Spread cm3 : 1.0

100 s: (1.4)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1020

travel mm : 9.90...10.10

2nd speed rpm : 300

travel mm : 1.60...2.00

3rd speed rpm : 400

travel mm : 3.40...4.00

4th speed rpm : 600

travel mm : 5.20...5.60

5th speed rpm : 1250

travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 945

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 975

Aneroid pressure h: 900

Del.quantity : 269.0...272.0

1000 : (265.5...275.5)

Spread cm³ : 6.00
 1000 : (10.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 10.90
Speed rpm : 1015...1025
2nd rack travel in: 4.00
Speed rpm : 1075...1105
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 71...79

Testing:
Speed rpm : 100
Minimum rack travel: 5.00
Speed rpm : 300
Rack travel in mm : 3.50...3.70

CONSTANT REGULATION

Speed rpm : 280...400

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 975
Rack travel in m: 11.90...12.00
2nd speed rpm : 800
Rack travel in m: 11.50...11.70
3rd speed rpm : 500
Rack travel in m: 10.50...10.90

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 975
Pressure hPa : 900
Rack travel mm : 11.90...12.00

Measurement

Speed 1/min : 975

1st pressure hPa : -
Rack travel in m: 9.10...9.30
2nd pressure hPa : 490
Rack travel in m: 11.20...11.30
3rd pressure hPa : 350
Rack travel in m: 9.80...10.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 500
Del.quantity cm³/ : 245.0...253.0
 1000 s: (241.5...256.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 196.0...199.0
 1000 s: (192.5...202.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1015...1025

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 195.0...225.0
 1000 s: (191.0...229.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.40...3.80
Del.quantity cm³/ : 19.0...25.0
 1000 s: (15.0...29.0)
Spread cm³ : 10.00
 1000 s: (14.00)

Remarks:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 13,8 h2
 Edition : 22.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 947
 Injection pump
 Pump designation : PE6P130A72ORS7225
 EP type number : 0 412 636 817
 Governor
 Governor design. : RQV300...950PA1002-1
 K
 Governor no. : 0 421 815 280
 Customer spec. information
 Customer : IVECO-UNIC
 Engine : 8210.42.400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.00...5.10
 : (4.95...5.15)

Rack travel in mm : 12.50...13.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 950
 Rack travel in mm : 12.80...12.90
 Del.quantity cm3/ : 29.8...30.1
 100 s: (29.4...30.4)
 Spread cm3 : 0.6
 100 s: (1.0)
 2nd speed rpm : 300.0
 Rack travel in mm : 3.9...4.3
 Del.quantity cm3/ : 1.9...2.5
 100 s: (1.5...2.9)
 Spread cm3 : 1.0
 100 s: (1.4)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 995
 travel mm : 8.50...8.70
 2nd speed rpm : 300
 travel mm : 1.00...1.40
 3rd speed rpm : 500
 travel mm : 3.30...3.90
 4th speed rpm : 750
 travel mm : 5.80...6.20
 5th speed rpm : 1300
 travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1025
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 950
 Aneroid pressure h: 900
 Del.quantity : 298.0...301.0
 1000 : (294.5...304.5)

Spread cm³ : 6.00
1000 : (10.00)

RATED SPEED

1st version
Control lever
position degrees: 110...118

Testing:
1st rack travel in: 11.80
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1090...1120
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 68...76

Testing:
Speed rpm : 100
Minimum rack travel: 5.60
Speed rpm : 300
Rack travel in mm : 4.00...4.20

CONSTANT REGULATION
Speed rpm : 340...460

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 950
Rack travel in m: 12.80...12.90
2nd speed rpm : 750
Rack travel in m: 12.60...12.90
3rd speed rpm : 500
Rack travel in m: 11.40...11.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 950
Pressure hPa : 900
Rack travel mm : 12.80...12.90

Measurement
Speed 1/min : 950

1st pressure hPa : -
Rack travel in m: 9.30...9.50
2nd pressure hPa : 560
Rack travel in m: 11.90...12.00
3rd pressure hPa : 350
Rack travel in m: 10.10...10.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 500
Del.quantity cm³/ : 268.0...276.0
1000 s: (263.5...279.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 197.0...200.0
1000 s: (193.5...203.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 195.0...225.0
1000 s: (191.0...229.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.90...4.30
Del.quantity cm³/ : 19.0...25.0
1000 s: (15.0...29.0)
Spread cm³ : 10.00
1000 s: (14.00)

Remarks:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 a10
 Edition : 19.03.91
 Replaces : 30.3.90
 Test oil : ISO-4113

Combination no. : 0 402 648 833

Injection pump
 Pump designation : PE8P120A320LS7801-1
 EP type number : 0 412 628 818
 Governor
 Governor design. : RQV350...1050PA866-3
 Governor no. : 0 421 813 703

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 260.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.80...12.90

Del.quantity cm3/ : 17.8...18.0

100 s: (17.5...18.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...6.0

Del.quantity cm3/ : 1.5...2.1

100 s: (1.2...2.4)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.40

2nd speed rpm : 600

travel mm : 4.90...5.10

3rd speed rpm : 1100

travel mm : 8.00...8.50

4th speed rpm : 1170

travel mm : 9.20...9.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1090

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050
Aneroid pressure h : 1100
Del.quantity : 178.0...180.0
1000 : (175.0...183.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:
1st rack travel in: 11.80
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1
Control lever
position degrees: 67...75

Testing:
Speed rpm : 250
Minimum rack trave: 7.30
Speed rpm : 350
Rack travel in mm : 5.60...5.80

CONSTANT REGULATION
Speed rpm : 350...550

TORQUE CONTROL
Dimension a mm : 1.60
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.80...12.90
2nd speed rpm : 750
Rack travel in m: 14.40...14.60
3rd speed rpm : 950
Rack travel in m: 13.50...13.60
4th speed rpm : 830
Rack travel in m: 14.30...14.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : -
Rack travel mm : 11.20...11.50

Measurement
Speed 1/min : 600

1st pressure hPa : 420

G24

Rack travel in m: 11.90...12.10
2nd pressure hPa : 600
Rack travel in m: 13.60...13.80

START CUT-OUT

Speed 1/min : 270 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1100
Speed rpm : 700
Del.quantity cm3/ : 209.0...213.0
1000 s: (206.0...216.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1100
Speed rpm : 1050
Del.quantity cm3/ : 152.0...154.0 *
1000 s: (149.0...157.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 138.0...140.0
1000 s: (135.0...143.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 180.0...200.0
1000 s: (176.0...204.0)

Remarks:

:

* = Set at reduced-delivery stop.

Note remarks

Combination no. : 0 402 648 882

1st version kW : 269.0
Rated speed : 1900

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 500
 Aneroid pressure h: 800
 Del.quantity : 202.0...204.0
 1000 : (199.0...207.0)
 Spread cm3 : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 117...125

Testing:
 1st rack travel in: 11.90
 Speed rpm : 990...1000
 2nd rack travel in: 4.00
 Speed rpm : 1060...1090
 4th rack travel in: 1200
 Speed rpm : 0.00...1.00

LOW IDLE 1
 Control lever
 position degrees: 84...92

Testing:
 Speed rpm : 200
 Minimum rack trave: 8.00
 Speed rpm : 300
 Rack travel in mm : 6.00...6.40

CONSTANT REGULATION
 Speed rpm : 300...500

TORQUE CONTROL
 Dimension a mm : 1.30
 2nd speed rpm : 950
 Rack travel in m: 12.90...13.10
 3rd speed rpm : 800
 Rack travel in m: 14.20...14.40

Aneroid/Altitude
 Compensator Test

1st version
 Setting
 Speed rpm : 600
 Pressure hPa : 800
 Rack travel mm : 14.00...14.20

Measurement
 Speed 1/min : 600

1st pressure hPa : 350
 Rack travel in m: 11.80...12.00
 2nd pressure hPa : 500
 Rack travel in m: 13.30...13.60

3rd pressure hPa : 950
 Rack travel in m: 14.10...14.20 *
 4th pressure hPa : -
 Rack travel in m: 10.60...11.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1150
 Speed rpm : 950
 Del.quantity cm3/ : 188.0...191.0
 1000 s: (185.0...194.0)
 Spread cm3 : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 1150
 Speed rpm : 750
 Del.quantity cm3/ : 211.0...214.0
 1000 s: (208.0...217.0)
 Spread cm3 : 8.00
 1000 s: (12.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm3/ : 134.0...136.0
 1000 s: (131.0...139.0)
 Spread cm3 : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than

 full load rack tr: 11.90
 Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm3/ : 175.0...190.0
 1000 s: (171.0...194.0)

Remarks:

* Increase in control-rod travel with
 respect to setting at least 0.1 mm

Note remarks

Combination no. : 0 402 648 889

Customer-spec. information
Customer : MERCEDES-BENZ

1st version kW : 362.0
Rated speed : 1900

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00x2.50x1000

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

```
Prestroke mm      : 5.20...5.30
                   : (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order      : 8- 7- 2- 6- 3- 5-
                   : 4- 1
```

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

1st speed rpm : 600

Rack travel in mm : 14.60...14.80

Del.quantity cm³/ : 25.5...25.7

100 s: (25.2...26.0)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.5

Del.quantity cm3/ : 1.3...1.9

100 s: (1.0...2.2)

Spread cm³ : 0.6

100 s: (1.0)

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 255.0...257.0

1000 : (252.0...260.0)

Spread cm³ : 6.00

1000 : (9.00)

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.20
Speed rpm : 990...1005
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1150
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:

Speed rpm : 200
Minimum rack travel: 7.80
Speed rpm : 300
Rack travel in mm : 5.90...6.50
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.90
2nd speed rpm : 950
Rack travel in m: 15.20...15.40
3rd speed rpm : 800
Rack travel in m: 15.50...15.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.60...14.80

Measurement

Speed 1/min : 600

1st pressure hPa : 350
Rack travel in m: 11.60...11.80
2nd pressure hPa : 700
Rack travel in m: 13.80...14.00
3rd pressure hPa : 1200
Rack travel in m: 14.80...15.00
4th pressure hPa : 1300
Rack travel in m: 15.20...15.40
5th pressure hPa : -
Rack travel in m: 10.20...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600
Speed rpm : 950

Del.quantity cm3/ : 266.0...269.0
1000 s: (263.0...272.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1600
Speed rpm : 800
Del.quantity cm3/ : 267.0...271.0
1000 s: (264.0...274.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 141.0...143.0
1000 s: (138.0...146.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 14.20
Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 j 1
Edition : 19.03.90
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 648 898
Injection pump
Pump designation : PE8P120A320LS7816
EP type number : 0 412 628 829
Governor
Governor design. : RQ300/950PA700

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 362.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

H01

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.60...14.80

Del.quantity cm3/ : 25.4...25.6
100 s: (25.1...25.9)

Spread cm3 : 0.6
100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 5.9...6.5
Del.quantity cm3/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm3 : 0.6
100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -2
Speed rpm : 600
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 1000
Del.quantity : 254.0...256.0
1000 : (251.0...259.0)
Spread cm3 : 6.00
1000 : (9.00)

RATED SPEED

1st version

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.20
Speed rpm : 990...1005
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1150
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:

Speed rpm : 200
Minimum rack travel: 7.80
Speed rpm : 300
Rack travel in mm : 5.90...6.50
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.90
2nd speed rpm : 950
Rack travel in m: 15.20...15.40
3rd speed rpm : 800
Rack travel in m: 15.50...15.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600
Speed rpm : 950
Del.quantity cm3/ : 270.0...273.0
1000 s: (267.0...276.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1600
Speed rpm : 800
Del.quantity cm3/ : 270.0...274.0
1000 s: (267.0...277.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 145.0...147.0
1000 s: (142.0...150.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.20
Speed rpm : 990...1005

H02

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 w 2
Edition : 28.03.91
Replaces : 27.2.91
Test oil : ISO-4113

Combination no. : 0 402 648 898

Injection pump
Pump designation : PE8P120A320LS7838
EP type number : 0 412 628 848
Governor
Governor design. : RQ300/950PA971-4
Governor no. : 0 421 801 558

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 320.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.80...14.00

Del.quantity cm³/ : 22.3...22.5
100 s: (22.0...22.8)

Spread cm³ : 0.6
100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 6.2...6.8
Del.quantity cm³/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm³ : 0.6
100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -2
Speed rpm : 600
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 900
Del.quantity : 223.0...225.0
1000 : (220.0...228.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Setting point:
Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.50

Speed rpm : 990...1005

2nd rack travel in: 4.00

Speed rpm : 1070...1100

4th rack travel in: 1150

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.5

Testing:

Speed rpm : 200

Minimum rack travel: 7.80

Speed rpm : 300

Rack travel in mm : 6.20...6.80

Rack travel in mm : 2.00

Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?

2nd speed rpm : 950

Rack travel in m: 14.50...14.70

3rd speed rpm : 800

Rack travel in m: 15.20...15.40

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 900

Rack travel mm : 13.80...14.00

Measurement

Speed 1/min : 600

1st pressure hPa : 350

Rack travel in m: 9.80...10.00

2nd pressure hPa : 650

Rack travel in m: 12.80...13.00

3rd pressure hPa : 1100

Rack travel in m: 13.90...14.10 *

4th pressure hPa : 1350

Rack travel in m: 14.80...15.00

5th pressure hPa : -

Rack travel in m: 9.30...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600

Speed rpm : 950

H04

Del.quantity cm3/ : 234.0...237.0

1000 s: (231.0...240.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: 1600

Speed rpm : 800

Del.quantity cm3/ : 243.0...247.0

1000 s: (240.0...250.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 138.0...140.0

1000 s: (135.0...143.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.50

Speed rpm : 990...1005

Remarks:

:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 w
Edition : 28.03.91
Replaces : 16.1.91
Test oil : ISO-4113

Combination no. : 0 402 648 906

Injection pump
Pump designation : PE8P120A320LS7838
EP type number : 0 412 628 848
Governor
Governor design. : RQ300/1050PA972-6
Governor no. : 0 421 801 569

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 320.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.10...14.30

Del.quantity cm3/ : 22.9...23.1

100 s: (22.6...23.4)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 1020

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 229.0...231.0

1000 : (226.0...234.0)

Spread cm3 : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 1020

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.50
Speed rpm : 1090...1105
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:

Speed rpm : 200
Minimum rack travel: 7.80
Speed rpm : 300
Rack travel in mm : 6.20...6.80

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : ?
2nd speed rpm : 1050
Rack travel in m: 14.50...14.70
3rd speed rpm : 800
Rack travel in m: 15.00...15.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : 350
Rack travel in m: 10.00...10.20
2nd pressure hPa : 700
Rack travel in m: 13.00...13.20
3rd pressure hPa : 1200
Rack travel in m: 14.30...14.50
4th pressure hPa : 1350
Rack travel in m: 14.70...14.90
5th pressure hPa : -
Rack travel in m: 9.20...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600

H06

Speed rpm : 1050
Del.quantity cm3/ : 226.0...229.0
1000 s: (223.0...232.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1600
Speed rpm : 800
Del.quantity cm3/ : 239.0...243.0
1000 s: (236.0...246.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 138.0...140.0
1000 s: (135.0...143.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.50
Speed rpm : 1090...1105

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 w 1
Edition : 28.03.91
Replaces : 16.1.91
Test oil : ISO 4113

Combination no. : 0 402 648 908

Injection pump
Pump designation : PE8P120A320LS7838
EP type number : 0 412 628 848
Governor
Governor design. : RQV300...950PA797-23
Governor no. : 0 421 813 910

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 320.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

```
Prestroke mm      : 5.20...5.30
                  : (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order      : 8- 7- 2- 6- 3- 5-
                  : 4- 1
```

Phasing : 0-45-90-135-180-225-270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.80...14.00

Del.quantity cm3/ : 22.3...22.5
100 s: (22.0...22.8)

Spread cm³ : 0.6
100 s : (0.9

```

2nd speed      rpm : 300.0
Rack travel in mm : 6.2...6.8
Del.quantity cm3/ : 1.6...2.2
                100 s: (1.3...2.5)
Spread         cm3 : 0.6
                100 s: (1.0)

```

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
travel mm		: 1.00...1.50
2nd speed	rpm	: 617
travel mm		: 5.00...5.50
3rd speed	rpm	: 780
travel mm		: 6.10...6.60
4th speed	rpm	: 1009
travel mm		: 8.30...8.80
5th speed	rpm	: 1092
travel mm		: 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1020
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
Aneroid pressure h: 900
Del.quantity : 223.0...225.0
1000 : (220.0...228.0)
Spread cm3 : 6.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 120...128

Testing:

1st rack travel in: 13.50
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1080...1110
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 82...90

Testing:

Speed rpm : 200
Minimum rack trave: 7.80
Speed rpm : 300
Rack travel in mm : 6.20...6.80

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : 0.70
2nd speed rpm : 950
Rack travel in m: 14.50...14.70
3rd speed rpm : 800
Rack travel in m: 15.20...15.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.80...14.00

Measurement

Speed 1/min : 600

1st pressure hPa : 350
Rack travel in m: 9.80...10.00
2nd pressure hPa : 650
Rack travel in m: 12.80...13.00

H08

3rd pressure hPa : 1100
Rack travel in m: 13.90...14.10 *
4th pressure hPa : 1350
Rack travel in m: 14.80...15.00
5th pressure hPa : -
Rack travel in m: 9.30...9.50

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600
Speed rpm : 950
Del.quantity cm3/ : 234.0...237.0
1000 s: (231.0...240.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1600
Speed rpm : 800
Del.quantity cm3/ : 243.0...247.0
1000 s: (240.0...250.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 138.0...140.0
1000 s: (135.0...143.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.50
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

Note remarks

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.10

Speed rpm : 990...1005

2nd rack travel in: 4.00

Speed rpm : 1070...1100

4th rack travel in: 1150

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.3

Testing:

Speed rpm : 200

Minimum rack travel: 7.60

Speed rpm : 300

Rack travel in mm : 6.00...6.60

Rack travel in mm : 2.00

Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?

2nd speed rpm : 950

Rack travel in m: 13.10...13.30

3rd speed rpm : 800

Rack travel in m: 14.10...14.30

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 800

Rack travel mm : 13.40...13.60

Measurement

Speed 1/min : 600

1st pressure hPa : 350

Rack travel in m: 11.20...11.40

2nd pressure hPa : 600

Rack travel in m: 12.80...13.00

3rd pressure hPa : 1050

Rack travel in m: 13.50...13.70 *

4th pressure hPa : 1150

Rack travel in m: 13.90...14.20

5th pressure hPa : -

Rack travel in m: 10.30...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400

Speed rpm : 950

Del.quantity cm³/ : 205.0...208.0

1000 s: (202.0...211.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: 1400

Speed rpm : 800

Del.quantity cm³/ : 236.0...240.0

1000 s: (233.0...243.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 123.0...125.0

1000 s: (120.0...128.0)

Spread cm³ : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.10

Speed rpm : 990...1005

Remarks:

:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 v 3
 Edition : 28.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 648 911
 Injection pump
 Pump designation : PE8P120A320LS7839
 EP type number : 0 412 628 849
 Governor
 Governor design. : RQV300...1050PA797
 -27
 Governor no. : 0 421 813 916

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.10...14.30

Del.quantity cm3/ : 25.2...25.4

100 s: (24.9...25.7)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.2...5.8

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.00...1.50

2nd speed rpm : 558

travel mm : 4.30...4.80

3rd speed rpm : 820

travel mm : 5.90...6.40

4th speed rpm : 1108

travel mm : 8.30...8.80

5th speed rpm : 1183

travel mm : 8.30...8.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
Aneroid pressure h: 1050
Del.quantity : 252.0...254.0
1000 : (249.0...257.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 118...126

Testing:

1st rack travel in: 14.10
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 76...84

Testing:

Speed rpm : 200
Minimum rack trave: 6.80
Speed rpm : 300
Rack travel in mm : 5.20...5.80

CONSTANT REGULATION

Speed rpm : 300...450

TORQUE CONTROL

Dimension a mm : 0.80
2nd speed rpm : 1050
Rack travel in m: 15.10...15.30
3rd speed rpm : 800
Rack travel in m: 15.90...16.10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1050
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : 290
Rack travel in m: 8.70...8.90
2nd pressure hPa : 780

Rack travel in m: 13.20...13.40
3rd pressure hPa : 1200
Rack travel in m: 14.20...14.40 *
4th pressure hPa : 1380
Rack travel in m: 15.10...15.30
5th pressure hPa : -
Rack travel in m: 8.30...8.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800
Speed rpm : 1050
Del.quantity cm³/ : 274.0...277.0
1000 s: (271.0...280.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1800
Speed rpm : 800
Del.quantity cm³/ : 295.0...299.0
1000 s: (292.0...302.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 139.0...141.0
1000 s: (136.0...144.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.10
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 275.0...295.0
1000 s: (271.0...299.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,8 o 3
 Edition : 19.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 648 914
 Injection pump
 Pump designation : PE8P120A320LS7835
 EP type number : 0 412 628 847
 Governor
 Governor design. : RQV300...1050PA797
 -30
 Governor no. : 0 421 813 921

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM402 A

1st version kW : 280.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.60...14.80

Del.quantity cm3/ : 22.1...22.3

100 s: (21.8...22.6)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.00...1.50

2nd speed rpm : 558

travel mm : 4.30...4.80

3rd speed rpm : 820

travel mm : 5.90...6.40

4th speed rpm : 1108

travel mm : 8.30...8.80

5th speed rpm : 1183

travel mm : 8.30...8.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
 Aneroid pressure h: 900
 Del.quantity : 221.0...223.0
 1000 : (218.0...226.0)
 Spread cm3 : 6.00
 1000 : (9.00)

RATED SPEED

1st version

Control lever
 position degrees: 118...126

Testing:

1st rack travel in: 13.30
 Speed rpm : 1090...1100
 2nd rack travel in: 4.00
 Speed rpm : 1170...1200
 4th rack travel in: 1250
 Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
 position degrees: 82...90

Testing:

Speed rpm : 200
 Minimum rack trave: 7.80
 Speed rpm : 300
 Rack travel in mm : 6.20...6.80

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : 0.60
 2nd speed rpm : 1050
 Rack travel in m: 14.30...14.50
 3rd speed rpm : 800
 Rack travel in m: 14.90...15.10

Aneroid/Altitude Compensator Test

1st version

Setting
 Speed rpm : 600
 Pressure hPa : 900
 Rack travel mm : 14.60...14.80

Measurement

Speed 1/min : 600

1st pressure hPa : 250
 Rack travel in m: 9.90...10.10
 2nd pressure hPa : 600

H14

Rack travel in m: 13.30...13.50
 3rd pressure hPa : 1100
 Rack travel in m: 14.70...14.80 *
 4th pressure hPa : -
 Rack travel in m: 9.00...9.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
 Speed rpm : 1050
 Del.quantity cm3/ : 222.0...225.0
 1000 s: (219.0...228.0)
 Spread cm3 : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 1500
 Speed rpm : 800
 Del.quantity cm3/ : 234.0...238.0
 1000 s: (231.0...241.0)
 Spread cm3 : 8.00
 1000 s: (12.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm3/ : 122.0...124.0
 1000 s: (119.0...127.0)
 Spread cm3 : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

 full load rack tr: 13.30
 Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm3/ : 200.0...220.0
 1000 s: (196.0...224.0)

Remarks:

* Increase in control-rod travel with
 respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,8 o 4
Edition : 19.03.91
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 648 915

Injection pump
Pump designation : PE8P120A320LS7835
EP type number : 0 412 628 847
Governor
Governor design. : RQ300/1050PA993-1
Governor no. : 0 421 801 582

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM402 A

1st version kW : 280.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
(5.45...5.65)
Rack travel in mm : 20.00...21.00
Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.60...14.80

Del.quantity cm³/ : 22.1...22.3

100 s: (21.8...22.6)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del.quantity : 221.0...223.0

1000 : (218.0...226.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.40
Speed rpm : 1090...1105
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:

Speed rpm : 200
Minimum rack travel: 7.80
Speed rpm : 300
Rack travel in mm : 6.20...6.80
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.50
2nd speed rpm : 950
Rack travel in m: 14.40...14.60
3rd speed rpm : 800
Rack travel in m: 14.90...15.10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 14.60...14.80

Measurement

Speed 1/min : 600

1st pressure hPa : 250
Rack travel in m: 9.90...10.10
2nd pressure hPa : 600
Rack travel in m: 13.30...13.50
3rd pressure hPa : 1100
Rack travel in m: 14.70...14.80 *
4th pressure hPa : -
Rack travel in m: 9.10...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050
Del.quantity cm3/ : 222.0...225.0
1000 s: (219.0...228.0)

Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm3/ : 234.0...238.0
1000 s: (231.0...241.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 122.0...124.0
1000 s: (119.0...127.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.30
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 210.0...230.0
1000 s: (206.0...234.0)

Remarks:

:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 14,5 e1
 Edition : 28.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 648 916
 Injection pump
 Pump designation : PE8P120A520LS7818-1
 EP type number : 0 412 628 857
 Governor
 Governor design. : RQV250...1150PA902
 Governor no. : 0 421 813 720

Customer-spec. information
 Customer : MAN

Engine : D2848LXE 40

1st version kW : 500.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60
 : (4.45...4.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 14.10...14.20

Del.quantity cm³/ : 30.7...30.9

100 s: (30.4...31.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 500
 Rack travel in mm : 8.90...9.10
 Del.quantity cm³/ : 14.9...15.1
 100 s: (14.6...15.4)

3rd speed rpm : 250
 Rack travel in mm : 7.30...7.50
 Del.quantity cm³/ : 5.2...6.0 *
 100 s: (-)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.40...1.60
 2nd speed rpm : 450
 travel mm : 3.40...4.00
 3rd speed rpm : 850
 travel mm : 6.30...6.90
 4th speed rpm : 1150
 travel mm : 9.40...9.60
 5th speed rpm : 1450
 travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1210
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1150
Aneroid pressure h: 1300
Del.quantity : 307.0...309.0
1000 : (304.0...312.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:
1st rack travel in: 13.10
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1285...1315
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 80...88

Testing:
Speed rpm : 100
Minimum rack trave: 8.90
Speed rpm : 250
Rack travel in mm : 7.30...7.50
Rack travel in mm : 2.00
Speed rpm : 430...490

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1300
Rack travel mm : 14.10...14.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.10
2nd pressure hPa : 100
Rack travel in m: 9.30...9.40
3rd pressure hPa : 470
Rack travel in m: 11.90...12.20

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 149.0...151.0
1000 s: (146.0...154.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.10
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...12.0 *
1000 s: (-)

Speed rpm : 100
Del.quantity cm3/ : 0 **
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 500
Rack travel in mm : < 7.00
Del.quantity cm3/ : 0 **
1000 s: (-)

2nd version
Speed rpm : 500
Rack travel in mm : < 7.50
Del.quantity cm3/ : < 50.0 **
1000 s: (-)

3rd version
Speed rpm : 500
Rack travel in mm : 8.30...8.50
Del.quantity cm3/ : 125.0... **
1000 s: (-)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 7.30...7.50
Del.quantity cm3/ : 52.0...60.0 *
1000 s: (-)

Remarks:

* applies to cylinders 2, 3, 4 and 8
** applies for cylinders 1, 5, 6, and 7

APPLICATION

Ship

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 g 3
Edition : 19.03.91
Replaces : 8.6.88
Test oil : ISO-4113

Combination no. : 0 402 678 808

Injection pump
Pump designation : PE8P120A320LS7801-2
EP type number : 0 412 628 825
Governor
Governor design. : RSV350...1050POA535
Governor no. : 0 421 833 281

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM442LA

1st version kW : 320.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness : 8.00X2.50X1000
x Length mm

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (4.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.50...14.60

Del. quantity cm3/ : 21.6...21.9
100 s: (21.3...22.2)

Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 350.0
Rack travel in mm : 5.6...5.8
Del. quantity cm3/ : 1.5...2.1
100 s: (1.2...2.4)
Spread cm3 : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 750
Del. quantity : 216.0...219.0
1000 : (213.0...222.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 86...94

Testing:

1st rack travel in: 14.00
Speed rpm : 1070...1080
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 14.00
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 63...71
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 350
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 360...420

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1030
Rack travel in m: 15.00...15.20
2nd speed rpm : 850
Rack travel in m: 15.70...15.90
3rd speed rpm : 920
Rack travel in m: 15.40...15.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 750
Rack travel mm : 14.50...14.60

Measurement

Speed 1/min : 600

1st pressure hPa : 400
Rack travel in m: 12.20...12.40
2nd pressure hPa : 550
Rack travel in m: 13.70...13.90
3rd pressure hPa : 950
Rack travel in m: 14.90...15.10
4th pressure hPa : 1050
Rack travel in m: 15.30...15.50
5th pressure hPa : -

H21

Rack travel in m: 11.20...11.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1250
Speed rpm : 1030
Del.quantity cm3/ : 222.0...225.0
1000 s: (219.0...228.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1250
Speed rpm : 850
Del.quantity cm3/ : 234.0...238.0
1000 s: (231.0...241.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 143.0...145.0
1000 s: (140.0...148.0)
Spread cm3 : 8.00
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.00
Speed rpm : 1070...1080

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

Observe VDT-I-420/120

Note remarks

Combination no. : 0 402 678 810

Customer spec. information
Customer : DAIMLER-BENZ

1st version kW : 260.0
Rated speed : 2100

Test oil
inlet temp. °C : 38...42

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 105

Orifice plate
diameter mm : 0,8

Outside diameter
x Wall thickness
x Length mm : 8.00x2.50x1000

BEGINNING OF DELIVERY

```
Prestroke mm      : 5.20...5.30
                   : (4.15...5.35)
```

Phasing : 0-45-90-135-180-225-
270-315

Time to cyl. no. : 8

1st speed rpm : 1030

Del.quantity cm³/ : 17.8...18.0

100 s: (17.5...18.3)

Spread cm³ : 0.5

100 s: (0.9)

```

2nd speed      rpm : 450.0
Rack travel in mm : 4.9...5.2
Del.quantity cm3/ : 1.6...2.2
                100 s: (1.3...2.5)
Spread         cm3 : 0.8
                100 s: (1.2)

```

Control-lever position
Degree: -3

Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : ?

1st version

```
Speed      rpm      : 1030
Aneroid pressure h: 1100
Del.quantity      : 178.0...180.0
                1000 : (175.0...183.0)
Spread          cm3 : 5.00
                1000 : (9.00)
```

1st version

Control lever
position degrees: 88...96

Testing:

1st rack travel in: 11.70
Speed rpm : 1060...1070
2nd rack travel in: 4.00
Speed rpm : 1110...1130
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 450
Rack travel in mm : 4.90...5.20
Rack travel in mm : 2.00
Speed rpm : 460...520

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1030
Rack travel in m: 12.70...12.80
2nd speed rpm : 950
Rack travel in m: 13.10...13.30
3rd speed rpm : 800
Rack travel in m: 13.80...14.00
4th speed rpm : 700
Rack travel in m: 14.30...14.50

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.00...11.30

Measurement

Speed 1/min : 500

1st pressure hPa : 420
Rack travel in m: 11.70...11.90
2nd pressure hPa : 600
Rack travel in m: 13.40...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 700
Del.quantity cm3/ : 208.0...212.0
1000 s: (205.0...215.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 138.0...140.0
1000 s: (135.0...143.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1060...1070

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 180.0...200.0
1000 s: (176.0...204.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 g 6
Edition : 19.03.91
Replaces : 20.10.89
Test oil : ISO-4113

Combination no. : 0 402 678 812

Injection pump
Pump designation : PE8P120A320LS7801-2
EP type number : 0 412 628 825
Governor
Governor design. : RSV350...1050POA535-2
Governor no. : 0 421 833 318

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM442A

1st version kW : 260.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (4.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1030

Rack travel in mm : 12.80...12.90

Del.quantity cm3/ : 17.9...18.1

100 s: (17.6...18.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.4...6.0

Del.quantity cm3/ : 1.5...2.1

100 s: (1.2...2.4)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1030

Aneroid pressure h: 1100

Del.quantity : 179.0...181.0

1000 : (176.0...184.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control Lever

position degrees: 86...94

Testing:
1st rack travel in: 11.80
Speed rpm : 1070...1080
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 63...71
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.7

Testing:
Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 350
Rack travel in mm : 5.40...6.00
Rack travel in mm : 2.00
Speed rpm : 410...480

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1030
Rack travel in m: 12.80...12.90
2nd speed rpm : 950
Rack travel in m: 13.10...13.30
3rd speed rpm : 830
Rack travel in m: 13.80...14.00
4th speed rpm : 700
Rack travel in m: 14.40...14.60

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.20...11.50

Measurement
Speed 1/min : 500

1st pressure hPa : 420
Rack travel in m: 11.90...12.10
2nd pressure hPa : 600
Rack travel in m: 13.50...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

H25

Aneroid pressure h: 1100
Speed rpm : 700
Del. quantity cm3/ : 210.0...214.0
1000 s: (207.0...217.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 139.0...141.0
1000 s: (136.0...144.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.80
Speed rpm : 1070...1080

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 180.0...200.0
1000 s: (176.0...204.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 g 7
Edition : 19.03.91
Replaces : 1.3.91
Test oil : ISO-4113

Combination no. : 0 402 678 814

Injection pump
Pump designation : PE8P120A320LS7801-1
EP type number : 0 412 628 818
Governor
Governor design. : RSV350...1050POA535
Governor no. : 0 421 833 352

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM442LA

1st version kW : 260.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (4.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 13.90...14.10

Del.quantity cm³/ : 20.1...20.3
100 s: (19.8...20.6)

Spread cm³ : 0.5
100 s: (0.9)

2nd speed rpm : 350.0
Rack travel in mm : 5.6...5.8
Del.quantity cm³/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm³ : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 500
Aneroid pressure h: 700
Del.quantity : 201.0...203.0
1000 : (198.0...206.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 86...94

Testing:

1st rack travel in: 12.00
Speed rpm : 1070...1080
2nd rack travel in: 4.00
Speed rpm : 11140...1158
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 63...71
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 350
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 360...420

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1030
Rack travel in m: 13.00...13.20
2nd speed rpm : 700
Rack travel in m: 14.40...14.60
3rd speed rpm : 900
Rack travel in m: 13.50...13.70

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 13.90...14.10

Measurement

Speed 1/min : 600

1st pressure hPa : 400
Rack travel in m: 12.30...12.50
2nd pressure hPa : 500
Rack travel in m: 13.20...13.40
3rd pressure hPa : 925
Rack travel in m: 14.10...14.20
4th pressure hPa : -
Rack travel in m: 11.80...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 1030
Del.quantity cm3/ : 181.0...184.0
1000 s: (178.0...187.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1100
Speed rpm : 700
Del.quantity cm3/ : 213.0...217.0
1000 s: (210.0...220.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 143.0...145.0
1000 s: (140.0...148.0)
Spread cm3 : 8.00
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 1070...1080

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 180.0...200.0
1000 s: (176.0...204.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 g 8
 Edition : 19.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 678 815
 Injection pump
 Pump designation : PE8P120A320LS7801-1
 EP type number : 0 412 628 818
 Governor
 Governor design. : RSV350...1050P0A535
 Governor no. : 0 421 833 357

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM442A

1st version kW : 245.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (4.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 12.20...12.30

Del.quantity cm3/ : 17.0...17.2

100 s: (16.7...17.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 650.0

Rack travel in mm : 4.0...4.6

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

Del.quantity : 170.0...172.0

1000 : (167.0...175.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 86...94

Testing:

1st rack travel in: 11.00
Speed rpm : 1215...1225
2nd rack travel in: 4.00
Speed rpm : 1249...1267
4th rack travel in: 1500
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 71...79
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 4.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 650
Rack travel in mm : 4.00...4.60
Rack travel in mm : 2.00
Speed rpm : 660...720

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1180
Rack travel in m: 12.20...12.30
2nd speed rpm : 1000
Rack travel in m: 12.40...12.60
3rd speed rpm : 900
Rack travel in m: 12.80...13.00
4th speed rpm : 600
Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900
Del.quantity cm³/ : 184.0...187.0
1000 s: (181.0...190.0)
Spread cm³ : 8.00
1000 s: (12.0)
Speed rpm : 600
Del.quantity cm³/ : 195.0...199.0
1000 s: (192.0...202.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

J01

1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1215...1225

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...190.0
1000 s: (166.0...194.0)

Remarks:

:

Note remarks

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

```
1st version
Speed      rpm  : 1250
Aneroid pressure h: 1200
Del.quantity : 158.5...160.5
1000        : (155.5...163.5)
```

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 56...64

Testing:
1st rack travel in: 13.80
Speed rpm : 1290...1320
2nd rack travel in: 4.00
Speed rpm : 1475...1485
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 12...20

Testing:
Speed rpm : 275
Minimum rack travel: 7.20
Speed rpm : 400
Rack travel in mm : 5.50...5.70

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Dimension a mm : 1.60
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 14.80...14.90
2nd speed rpm : 800
Rack travel in m: 13.20...13.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1250
Pressure hPa : 1200
Rack travel mm : 14.80...14.90

Measurement
Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 8.20...8.60
2nd pressure hPa : 410
Rack travel in m: 10.00...10.10
3rd pressure hPa : 755
Rack travel in m: 13.20...13.60

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm³/ : 156.5...162.5
1000 s: (153.5...165.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 90.0...94.0
1000 s: (88.0...96.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.80
Speed rpm : 1290...1320

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (135.0...165.0)
Rack travel in mm : 11.90...12.90

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 32.0...38.0
1000 s: (30.0...40.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:
: C.D.C # 3918321

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Note remarks

Setting point:
Speed rpm : 650
Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.40
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 300
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.20...11.50

Measurement

Speed 1/min : 500

1st pressure hPa : 230
Rack travel in m: 11.50...11.60
2nd pressure hPa : 370
Rack travel in m: 12.90...13.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 600
Del.quantity cm³/ : 193.0...197.0
1000 s: (190.0...200.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 149.0...151.0
1000 s: (146.0...154.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

:

Adjust full-load delivery by turning
temperature-dependent excess-fuel stop
for starting (TAS).

APPLICATION

Omnibus

Note remarks

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
Aneroid pressure h: 950
Del.quantity : 284.0...286.0
1000 : (281.0...289.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 113...121

Testing:

1st rack travel in: 14.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 61...69

Testing:

Speed rpm : 300
Minimum rack trave: 5.90
Speed rpm : 450
Rack travel in mm : 4.00...4.60

CONSTANT REGULATION

Speed rpm : 450...650

TORQUE CONTROL

Dimension a mm : 0.60
2nd speed rpm : 1050
Rack travel in m: 15.40...15.60
3rd speed rpm : 900
Rack travel in m: 15.70...15.90
4th speed rpm : 800
Rack travel in m: 16.00...16.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 950
Rack travel mm : 15.20...15.40

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.80...12.00
2nd pressure hPa : 600

J07

Rack travel in m: 13.70...13.90
3rd pressure hPa : 1200
Rack travel in m: 15.50...15.70
4th pressure hPa : -
Rack travel in m: 9.80...10.20

START CUT-OUT

Speed 1/min : 370 (390)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600
Speed rpm : 1050
Del.quantity cm3/ : 280.0...283.0
1000 s: (277.0...286.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1600
Speed rpm : 800
Del.quantity cm3/ : 298.0...302.0
1000 s: (295.0...305.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 145.0...147.0
1000 s: (142.0...150.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 280.0...300.0
1000 s: (276.0...304.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 16,0 a
Edition : 19.03.91
Replaces : 16.3.90
Test oil : ISO-4113

Combination no. : 0 402 748 802

Injection pump
Pump designation : PES8P120A920/4LS7159
EP type number : 0 412 728 801
Governor
Governor design. : RQV325...1050PA848-21K
Governor no. : 0 421 815 201

Customer spec. information
Customer : MACK

Engine : EE9 502

1st version kW : 368.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Overflow
quantity min. 1/h: 160...170

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65
: (3.50...3.70)
Rack travel in mm : 9.00...12.00
Firing order : 1- 2- 7- 8- 4- 5-
6- 3

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 630

Rack travel in mm : 12.10...12.20

Del.quantity cm3/ : 21.1...21.3

100 s: (20.8...21.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.8...5.0

Del.quantity cm3/ : 4.0...4.6

100 s: (3.8...4.8)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.30...1.60

2nd speed rpm : 450

travel mm : 2.30...2.70

3rd speed rpm : 800

travel mm : 4.40...4.80

4th speed rpm : 1050

travel mm : 6.90...7.10

5th speed rpm : 1200

travel mm : 8.90...9.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1220

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 630
Aneroid pressure h: 1200
Del.quantity : 211.0...213.0
1000 : (208.0...216.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 57...65

Testing:
1st rack travel in: 12.30
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 9...17

Testing:
Speed rpm : 275
Minimum rack trave: 1.50
Speed rpm : 325
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION
Speed rpm : 325...600

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 630
Rack travel in m: 12.10...12.30
2nd speed rpm : 1050
Rack travel in m: 13.30...13.50
3rd speed rpm : 500
Rack travel in m: 0.00...11.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1050
Pressure hPa : 1200
Rack travel mm : 13.30...13.50

Measurement
Speed 1/min : 1050

1st pressure hPa : -
Rack travel in m: 9.10...9.50

J09

2nd pressure hPa : 195
Rack travel in m: 10.20...10.30
3rd pressure hPa : 410
Rack travel in m: 12.10...12.50

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 204.0...210.0
1000 s: (201.0...213.0)
Spread cm3 : 10.00
1000 s: (14.0)
Speed rpm : 850
Del.quantity cm3/ : 159.0...161.0 *
1000 s: (151.0...173.5)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm3/ : 170.5...174.5
1000 s: (168.5...176.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.30
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...190.0
1000 s: (145.0...195.0)
Rack travel in mm : 9.50...9.90

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.80...5.00
Del.quantity cm3/ : 40.0...46.0
1000 s: (38.0...48.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MACK # 313GC5178P4

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

Bow dimension:

Sliding-sleeve position = 37.0 mm

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,7 c 3
 Edition : 22.03.91
 Replaces : 18.2.91
 Test oil : ISO-4113
 Combination no. : 0 402 776 806
 Injection pump
 Pump designation : PES6P120A720LS7120
 EP type number : 0 412 726 803
 Governor
 Governor design. : RSV350...1050POA529-
 3
 Governor no. : 0 421 833 317

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 A

1st version kW : 213.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 650

Rack travel in mm : 14.00...14.20

Del.quantity cm³/ : 20.2...20.4

100 s: (19.9...20.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 650

Aneroid pressure h: 650

Del.quantity : 202.0...204.0

1000 : (199.0...207.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 41...49

Testing:

1st rack travel in: 12.30
Speed rpm : 1080...1085
2nd rack travel in: 4.00
Speed rpm : 1160...1173
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.7
Speed rpm : 350
Rack travel in mm : 5.60...5.80

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1030
Rack travel in m: 13.30...13.50
2nd speed rpm : 950
Rack travel in m: 13.70...13.90
3rd speed rpm : 875
Rack travel in m: 14.20...14.40
4th speed rpm : 750
Rack travel in m: 14.70...14.90

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 650
Rack travel mm : 14.00...14.20

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 12.30...12.50
2nd pressure hPa : 850
Rack travel in m: 15.00...15.20
3rd pressure hPa : -
Rack travel in m: 11.30...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1030

Del.quantity cm3/ : 194.0...197.0
1000 s: (191.0...200.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm3/ : 219.0...224.0
1000 s: (216.0...227.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 144.0...146.0
1000 s: (141.0...149.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.30
Speed rpm : 1080...1085

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190.0...210.0
1000 s: (186.0...214.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 D12
Edition : 22.03.91
Replaces : 23.04.90
Test oil : ISO-4113

Combination no. : 0 403 436 111

Injection pump
Pump designation : PES6MW100/120RS1143
EP type number : 0 413 406 137
Governor
Governor design. : RQV350...1200MW82-6
Governor no. : 0 420 083 184

Customer spec. information
Customer : CUMMINS/US

Engine : 6 CTA-830

1st version kW : 186.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.15...3.25
: (3.10...3.30)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ : 14.0...14.2

100 s: (13.8...14.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 7.1...7.3
Del.quantity cm³/ : 1.2...1.6
100 s: (1.0...1.8)

Spread cm³ : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250
travel mm : 7.60...7.80

2nd speed rpm : 1350
travel mm : 8.60...9.00

3rd speed rpm : 350
travel mm : 1.20...1.60

4th speed rpm : 800
travel mm : 4.90...5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1200
Aneroid pressure h: 700
Del.quantity : 140.0...142.0
1000 : (138.0...144.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 42...50

Testing:

1st rack travel in: 11.30
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1370...1400
4th rack travel in: 1455
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.2

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 7.10...7.30

CONSTANT REGULATION

Speed rpm : 360...500

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200
Rack travel in m: 12.30...12.40
2nd speed rpm : 750
Rack travel in m: 13.00...13.10
3rd speed rpm : 1000
Rack travel in m: 12.40...12.60
4th speed rpm : 900
Rack travel in m: 12.60...12.80

Aneroid/Altitude
Compensator Test

1st version:

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.30...11.40

Measurement

Speed 1/min : 500

1st pressure hPa : 390
Rack travel in m: 11.50...11.60
2nd pressure hPa : 480
Rack travel in m: 12.00...12.30
3rd pressure hPa : 700
Rack travel in m: 13.00...13.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm3/ : 144.0...147.0
1000 s: (141.5...149.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 111.0...113.0
1000 s: (109.0...115.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 205.0...225.0
1000 s: (202.0...228.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.10...7.30
Del.quantity cm3/ : 12.0...16.0
1000 s: (10.0...18.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: CDC #3916000

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 H 3
 Edition : 19.03.91
 Replaces : 18.02.91
 Test oil : ISO-4113
 Combination no. : 0 403 444 123
 Injection pump
 Pump designation : PES4MW100/72ORS1151
 EP type number : 0 413 404 104
 Governor
 Governor design. : RQV300...1300MW50-16
 Governor no. : 0 420 083 240

Customer-spec. information
 Customer : MB-NFZ

Engine : OM364A

1st version kW : 79.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness : 6.00X1.50X600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.80...10.90

Del.quantity cm3/ : 8.2...8.4

100 s: (8.0...8.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.40...8.80

2nd speed rpm : 880

travel mm : 4.90...5.10

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 82.0...84.0

1000 : (80.0...86.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 108...116

Testing:
1st rack travel in: 9.80
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1420...1450
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.4

Testing:
Speed rpm : 200
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 480...540

TORQUE CONTROL
Dimension a mm : 0.70
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.80...10.90
2nd speed rpm : 600
Rack travel in m: 11.90...12.00
3rd speed rpm : 1000
Rack travel in m: 11.90...12.00
4th speed rpm : 1175
Rack travel in m: 11.30...11.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.00...10.10

Measurement
Speed 1/min : 500

1st pressure hPa : 150
Rack travel in m: 10.30...10.50
2nd pressure hPa : 300
Rack travel in m: 11.20...11.40
3rd pressure hPa : 700
Rack travel in m: 11.90...12.00

START CUT-OUT

J16

Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 600
Del.quantity cm3/ : 75.0...78.0
1000 s: (72.5...80.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 46.0...48.0
1000 s: (44.0...50.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.80
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 I 1
Edition : 19.03.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 444 126
Injection pump
Pump designation : PES4MM100/720RS1212
EP type number : 0 413 404 114
Governor
Governor design. : RQV300/1300MM105-5
Governor no. : 0 420 082 053

Customer-spec. information
Customer : MB-NFZ

Engine : OM364LA

1st version kW : 102.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.20...13.30

Del.quantity cm3/ : 10.1...10.3

100 s: (9.9...10.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: 109

Speed rpm : 800

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 107...115

Setting point:

Speed rpm : 800

Rack travel in mm : 15.5

Testing:

1st rack travel in: 12.20

Speed rpm : 1340...1350

2nd rack travel in: 4.00

Speed rpm : 1445...1475

4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:

Speed rpm : 200
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 320...550

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.10...10.20

Measurement

Speed 1/min : 500

1st pressure hPa : 200
Rack travel in m: 10.90...11.10
2nd pressure hPa : 400
Rack travel in m: 12.60...12.80
3rd pressure hPa : 700
Rack travel in m: 13.20...13.30

START CUT-OUT

Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 600
Del.quantity cm³/ : 86.0...89.0
1000 s: (83.5...91.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 36.0...38.0
1000 s: (34.0...40.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 85.0...95.0
1000 s: (82.0...98.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PER 10,0 S
Edition : 18.02.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 446 250
Injection pump
Pump designation : PES6MW100/320RS1194
EP type number : 0 413 406 186
Governor
Governor design. : RQV300...1300MW108K
Governor no. : 0 420 083 998

Customer-spec. information
Customer : PERKINS

Engine : 180 TI

1st version kW : 134.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.30...3.40
: (3.25...3.45)
Rack travel in mm : 12.00...14.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 14.30...14.40

Del.quantity cm3/ : 13.4...13.6

100 s: (13.2...13.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.1...6.3

Del.quantity cm3/ : 1.4...1.8

100 s: (1.1...2.0)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 10.00...10.40

2nd speed rpm : 900

travel mm : 6.40...6.60

3rd speed rpm : 480

travel mm : 3.10...3.70

4th speed rpm : 300

travel mm : 1.40...1.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1380

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 900

Del.quantity : 134.0...136.0

1000 : (132.0...138.0)

Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 13.30
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1480...1510
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:
Speed rpm : 200
Minimum rack travel: 7.50
Speed rpm : 300
Rack travel in mm : 6.10...6.30

CONSTANT REGULATION
Speed rpm : 330...500

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 14.30...14.40
2nd speed rpm : 800
Rack travel in m: 13.30...13.40
3rd speed rpm : 500
Rack travel in m: 11.80...11.90
4th speed rpm : 1000
Rack travel in m: 13.60...13.80
5th speed rpm : 700
Rack travel in m: 12.70...12.90

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.20...10.30

Measurement
Speed 1/min : 500

1st pressure hPa : 180

J20

Rack travel in m: 10.40...10.50
2nd pressure hPa : 220
Rack travel in m: 10.90...11.20
3rd pressure hPa : 900
Rack travel in m: 11.80...11.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 800
Del.quantity cm³/ : 126.0...129.0
1000 s: (123.5...131.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: 900
Speed rpm : 500
Del.quantity cm³/ : 107.5...110.5
1000 s: (105.0...113.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 77.0...79.0
1000 s: (75.0...81.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.30
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 90.0...100.0
1000 s: (87.0...103.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.10...6.30
Del.quantity cm³/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 6,2 G
Edition : 22.03.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 446 265
Injection pump
Pump designation : PES6MW100/320RS1154
EP type number : 0 413 406 144
Governor
Governor design. : RQV275...1250MW113
Governor no. : 0 420 083 228

Customer-spec. information
Customer : RVI

Engine : MIDR 060226 Q

1st version kW : 128.7
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 16.50...19.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.90...13.00

Del.quantity cm3/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 275.0

Rack travel in mm : 6.1...6.3

Del.quantity cm3/ : 2.3...2.7

100 s: (2.0...2.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1475

travel mm : 9.20...9.60

2nd speed rpm : 1300

travel mm : 7.80...8.00

3rd speed rpm : 500

travel mm : 3.00...3.60

4th speed rpm : 275

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1360

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1000

Del.quantity : 99.5...101.5

1000 : (97.5...103.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 129...137

Testing:
1st rack travel in: 12.00
Speed rpm : 1330...1350
2nd rack travel in: 4.00
Speed rpm : 1490...1530
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 77...85
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 6.2

Testing:
Speed rpm : 200
Minimum rack travel: 7.70
Speed rpm : 275
Rack travel in mm : 6.10...6.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.90...13.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.20...11.30
2nd pressure hPa : 200
Rack travel in m: 11.50...11.80
3rd pressure hPa : 360
Rack travel in m: 12.60...12.70

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm³/ : 91.5...94.5
1000 s: (89.0...97.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 49.0...51.0
1000 s: (47.0...53.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 1330...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 88.0...102.0
1000 s: (85.0...105.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275
Rack travel in mm : 6.10...6.30
Del.quantity cm³/ : 23.0...27.0
1000 s: (20.5...29.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

y y FEHLENDEN TEXT ÜBERSETZEN y y

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 D
 Edition : 22.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 273
 Injection pump
 Pump designation : PES6MW100/720RS1131
 EP type number : 0 413 406 123
 Governor
 Governor design. : RGV300...1300MW50-13
 Governor no. : 0 420 083 236

Customer spec. information
 Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 121.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 715 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.75)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 8.8...9.0

100 s : (8.6...9.2)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.4

Del.quantity cm³/ : 1.0...1.4

100 s : (0.7...1.6)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.40...9.80

2nd speed rpm : 1350

travel mm : 8.40...8.60

3rd speed rpm : 600

travel mm : 3.90...4.50

4th speed rpm : 300

travel mm : 0.80...1.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 88.0...90.0

1000 : (86.0...92.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 9.90
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1430...1460
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 78...86
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.3

Testing:
Speed rpm : 200
Minimum rack travel: 7.80
Speed rpm : 300
Rack travel in mm : 6.20...6.40

TORQUE CONTROL
Dimension a mm : 0.70
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.90...11.00
2nd speed rpm : 750
Rack travel in m: 11.60...11.70
3rd speed rpm : 1100
Rack travel in m: 11.10...11.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 290
Rack travel mm : 10.20...10.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.60...9.70
2nd pressure hPa : 400
Rack travel in m: 11.00...11.30
3rd pressure hPa : 700
Rack travel in m: 11.60...11.70

START CUT-OUT

Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

J25

1st version
Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm3/ : 86.0...89.0
1000 s: (83.5...91.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 49.0...51.0
1000 s: (47.0...53.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.90
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.20...6.40
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 6,1 N 8
 Edition : 22.03.91
 Replaces : 18.02.91
 Test oil : ISO-4113
 Combination no. : 0 403 446 277
 Injection pump
 Pump designation : PES6MW100/720RS1133
 EP type number : 0 413 406 126
 Governor
 Governor design. : RGV300...1325MW114
 Governor no. : 0 420 083 241

Customer-spec. information
 Customer : KHD

Engine : BF 6L 913

1st version kW : 124.0
 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1325

Rack travel in mm : 10.50...10.60

Del.quantity cm³/ : 10.1...10.3

100 s: (9.9...10.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.8...7.0

Del.quantity cm³/ : 1.1...1.5

100 s: (0.9...1.7)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1375

travel mm : 10.00...10.40

2nd speed rpm : 975

travel mm : 6.50...6.70

3rd speed rpm : 575

travel mm : 3.10...3.70

4th speed rpm : 300

travel mm : 0.50...0.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1225

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1325

Aneroid pressure h: 900

Del.quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 100...108

Testing:
1st rack travel in: 9.50
Speed rpm : 1365...1375
2nd rack travel in: 4.00
Speed rpm : 1430...1460
4th rack travel in: 1550
Speed rpm : 0.10...1.00

LOW IDLE 1
Control lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.9

Testing:
Speed rpm : 200
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.80...7.00
Rack travel in mm : 2.00
Speed rpm : 430...490

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 450
Rack travel mm : 9.90...10.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.00
2nd pressure hPa : 350
Rack travel in m: 9.30...9.60
3rd pressure hPa : 900
Rack travel in m: 10.50...10.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 800
Del.quantity cm3/ : 93.0...97.0
1000 s: (91.0...99.0)

Spread cm3 : 3.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 57.0...59.0
1000 s: (55.0...61.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1365...1375

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.80...7.00
Del.quantity cm3/ : 11.0...15.0
1000 s: (9.0...17.0)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 D 4
 Edition : 19.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 278
 Injection pump
 Pump designation : PES6MW100/720RS1131
 EP type number : 0 413 406 123
 Governor
 Governor design. : RGV300...1300MW50-17
 Governor no. : 0 420 083 244

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 150.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00... 12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300
 Rack travel in mm : 12.20...12.30
 Del.quantity cm3/ : 9.6...9.8
 100 s: (9.4...10.0)
 Spread cm3 : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 6.1...6.2
 Del.quantity cm3/ : 0.9...1.3
 100 s: (0.7...1.5)
 Spread cm3 : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1500
 travel mm : 9.80...10.20
 2nd speed rpm : 1350
 travel mm : 8.40...8.60
 3rd speed rpm : 670
 travel mm : 4.60...5.20
 4th speed rpm : 300
 travel mm : 1.10...1.50

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1370
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 700
 Del.quantity : 96.5...98.5
 1000 : (94.5...100.5)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 107...115

Testing:
1st rack travel in: 11.20
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 57...65
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 300
Rack travel in mm : 6.10...6.20

CONSTANT REGULATION
Speed rpm : 350...550

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.50...10.60

Measurement
Speed 1/min : 500

1st pressure hPa : 170
Rack travel in m: 10.90...11.00
2nd pressure hPa : 225
Rack travel in m: 11.80...12.10
3rd pressure hPa : 700
Rack travel in m: 12.20...12.30

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 575
Del.quantity cm³/ : 82.0...85.0
1000 s: (79.5...87.5)

Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 50.5...52.5
1000 s: (48.5...54.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.20
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 90.0...100.0
1000 s: (87.0...103.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.10...6.20
Del.quantity cm³/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
:

K01

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 D 3
 Edition : 19.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 279
 Injection pump
 Pump designation : PES6MM100/720RS1131
 EP type number : 0 413 406 123
 Governor
 Governor design. : RQV300/1200MM105-6
 Governor no. : 0 420 082 054

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 115.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 715 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.75)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 10.20...10.30

Del.quantity cm3/ : 8.4...8.6

100 s : (8.2...8.8)

Spread cm3 : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...5.8

Del.quantity cm3/ : 1.0...1.4

100 s : (0.7...1.6)

Spread cm3 : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

travel mm : 7.40...7.80

travel mm : 4.90...5.10

travel mm : 2.70...3.10

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: 107

Speed rpm : 800

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 700

Del.quantity : 84.0...86.0

1000 : (82.0...88.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 105...113

Setting point:

Speed rpm : 800
Rack travel in mm : 15.5

Testing:

1st rack travel in: 9.20
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1335...1365
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 73...81
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.7

Testing:

Speed rpm : 200
Minimum rack travel: 7.50
Speed rpm : 300
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 410...470

TORQUE CONTROL

Dimension a mm : 0.90
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 10.20...10.30
2nd speed rpm : 600
Rack travel in m: 11.10...11.20
3rd speed rpm : 1100
Rack travel in m: 10.30...10.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 200
Rack travel mm : 8.90...9.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.60...8.70
2nd pressure hPa : 350
Rack travel in m: 10.20...10.50
3rd pressure hPa : 700
Rack travel in m: 11.10...11.20

START CUT-OUT

Speed 1/min : 200 (230)

K03

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 600
Del.quantity cm³/ : 78.0...81.0
1000 s: (75.5...83.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 44.0...46.0
1000 s: (42.0...48.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 9.20
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 B 4
Edition : 22.03.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 446 280
Injection pump
Pump designation : PES6MW100/720RS1131-1
EP type number : 0 413 406 165
Governor
Governor design. : RQV300...1300MW50-19
Governor no. : 0 420 083 245

Customer-spec. information
Customer : MB-NFZ

Engine : OM366LA

1st version kW : 155.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
: (3.55...3.75)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.10...13.20

Del.quantity cm3/ : 9.8...10.0

100 s: (9.6...10.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 8.40...8.60

3rd speed rpm : 600

travel mm : 3.90...4.50

4th speed rpm : 300

travel mm : 0.80...1.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 99...107

Testing:
1st rack travel in: 12.10
Speed rpm : 1345...1355
2nd rack travel in: 4.00
Speed rpm : 1435...1465
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:
Speed rpm : 200
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.40...6.60

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.30...10.40

Measurement
Speed 1/min : 500

1st pressure hPa : 200
Rack travel in m: 11.20...11.30
2nd pressure hPa : 350
Rack travel in m: 12.40...12.70
3rd pressure hPa : 1000
Rack travel in m: 13.10...13.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm3/ : 87.0...91.0
1000 s: (85.0...93.0)
Spread cm3 : 5.00
1000 s: (7.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 36.0...38.0
1000 s: (34.0...40.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.10
Speed rpm : 1345...1355

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.40...6.60
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,3 C
Edition : 19.03.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 456 113
Injection pump
Pump designation : PES6MW100/321RS1210
EP type number : 0 413 406 201
Governor
Governor design. : RQ250/1050MW84-6
Governor no. : 0 420 082 049

Customer-spec. information
Customer : MAN

Engine : D 0826 LUH 250

1st version kW : 184.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 14.00...14.10

Del.quantity cm3/ : 15.9...16.1

100 s: (15.7...16.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 4.9...5.1

Del.quantity cm3/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1125

travel mm : 7.30...7.70

2nd speed rpm : 1050

travel mm : 6.10...6.30

3rd speed rpm : 400

travel mm : 5.70...6.30

4th speed rpm : 250

travel mm : 2.50...2.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: 98

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1100

Del.quantity : 159.0...161.0

1000 : (157.0...163.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 95...103

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.00

Speed rpm : 1075...1090

2nd rack travel in: 4.00

Speed rpm : 1130...1160

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 72...80

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 5.0

Testing:

Speed rpm : 100

Minimum rack travel: 7.50

Speed rpm : 250

Rack travel in mm : 4.90...5.10

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 14.00...14.10

2nd speed rpm : 600

Rack travel in m: 14.00...14.10

3rd speed rpm : 800

Rack travel in m: 14.00...14.10

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 190

Rack travel mm : 10.30...10.40

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.00...10.10

2nd pressure hPa : 870

Rack travel in m: 13.30...13.60

3rd pressure hPa : 1100

Rack travel in m: 14.00...14.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100

Speed rpm : 600

Del.quantity cm3/ : 162.0...165.0

1000 s: (159.5...167.5)

Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: 1100

Speed rpm : 800

Del.quantity cm3/ : 161.0...164.0

1000 s: (158.5...166.5)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 77.0...79.0

1000 s: (75.0...81.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00

Speed rpm : 1075...1090

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 130.0...140.0

1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 250

Rack travel in mm : 4.90...5.10

Del.quantity cm3/ : 13.0...17.0

1000 s: (10.5...19.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

: MAN #3-7127

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 4,1 H 2
 Edition : 19.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 474 014
 Injection pump
 Pump designation : PES4MW100/720RS1187
 EP type number : 0 413 404 108
 Governor
 Governor design. : RS300/1250MWA344
 Governor no. : 0 420 084 002

Customer-spec. information
 Customer : KHD

Engine : BF 4L 913C

1st version kW : 92.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness : 6.00X2.00X600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.90...13.00

Del.quantity cm3/ : 11.8...12.0
 100 s: (11.6...12.2)

Spread cm3 : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 8.0...8.2
 Del.quantity cm3/ : 1.2...1.6
 100 s: (0.9...1.8)
 Spread cm3 : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 1000
 Del.quantity : 118.0...120.0
 1000 : (116.0...122.0)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 105...113

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.90
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1385...1415
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 76...84
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.6
Speed rpm : 300
Rack travel in mm : 7.50...7.70
Rack travel in mm : 2.00
Speed rpm : 370...430

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 12.90...13.00
2nd speed rpm : 800
Rack travel in m: 13.20...13.30
3rd speed rpm : 900
Rack travel in m: 13.10...13.30
4th speed rpm : 1000
Rack travel in m: 12.90...13.10

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.80...10.90

Measurement

Speed 1/min : 500

1st pressure hPa : 320
Rack travel in m: 11.60...11.70
2nd pressure hPa : 470
Rack travel in m: 12.30...12.60
3rd pressure hPa : 1000
Rack travel in m: 13.20...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm3/ : 113.5...116.5
1000 s: (111.0...119.0)

Spread cm3 : 3.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 66.0...68.0
1000 s: (64.0...70.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.00...8.20
Del.quantity cm3/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 77
 Edition : 27.02.91
 Replaces : 16.08.90
 Test oil : ISO-4113
 Combination no. : 0 403 476 087
 Injection pump
 Pump designation : PES6MM100/720RS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RSV350...1200MWOA341
 Governor no. : 0 420 085 145

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366A

1st version kW : 100.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 10.20...10.30

Del.quantity cm³/ : 6.9...7.1

100 s: (6.7...7.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.0...7.6

Del.quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 69.0...71.0

1000 : (67.0...73.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.20

Speed rpm : 1240...1245 *

2nd rack travel in: 4.00
Speed rpm : 1280...1293
3rd rack travel in: 4.00
Speed rpm : 1310...1340
4th rack travel in: 1450
Speed rpm : 0.30...1.70
5th rack travel in: 1240...1255
Speed rpm : 9.20

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 7.00...7.60
Rack travel in mm : 2.00
Speed rpm : 440...500

TORQUE CONTROL

Dimension a mm : 0.90
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 10.20...10.30
2nd speed rpm : 800
Rack travel in m: 11.10...11.20
3rd speed rpm : 900
Rack travel in m: 11.00...11.20
4th speed rpm : 1050
Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del. quantity cm³/ : 69.0...71.0
1000 s: (67.0...73.0)
Spread cm³ : 5.00
1000 s: (7.0)

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 78.0...88.0
1000 s (75.0...91.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.00...7.60
Del. quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)

Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:
Check pneumatic shutoff device at 3.0 bar air pressure

* Read off speed set under 1.
Add 40...48 min⁻¹ to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 92
 Edition : 27.02.91
 Replaces : 16.08.90
 Test oil : ISO-4113

Combination no. : 0 403 476 088

Injection pump
 Pump designation : PES6MW100/720RS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RSV350...1300MWOA341
 -1
 Governor no. : 0 420 085 146

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366A

1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.70...10.80

Del.quantity cm3/ : 7.2...7.4
 100 s: (7.0...7.6)

Spread cm3 : 0.3
 100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 7.0...7.6
 Del.quantity cm3/ : 0.9...1.3
 100 s: (0.6...1.5)

Spread cm3 : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Del.quantity : 72.0...74.0
 1000 : (70.0...76.0)

Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 100...108

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

Testing:
 1st rack travel in: 9.70

Speed rpm : 1340...1345 *
2nd rack travel in: 4.00
Speed rpm : 1380...1393
3rd rack travel in: 4.00
Speed rpm : 1400...1430
4th rack travel in: 1500
Speed rpm : 0.30...1.70
5th rack travel in: 1345...1360
Speed rpm : 9.70

LOW IDLE 1

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Rack travel in mm : 2.00
Speed rpm : 445...505

TORQUE CONTROL

Dimension a mm : 1.30
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.70...10.80
2nd speed rpm : 700
Rack travel in m: 11.90...12.00
3rd speed rpm : 825
Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm3/ : 69.0...71.0
1000 s: (67.0...73.0)
Spread cm3 : 5.00
1000 s: (7.0)
Speed rpm : 825
Del.quantity cm3/ : 73.0...76.0
1000 s: (70.5...78.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 350

K13

Rack travel in mm : 7.00...7.60
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

* Read off speed set under 1.
Add 40...48 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

Check pneumatic shutoff device at 3.0
bar air pressure

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 93
 Edition : 27.02.91
 Replaces : 16.08.90
 Test oil : ISO-4113
 Combination no. : 0 403 476 089
 Injection pump
 Pump designation : PES6MW100/720RS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RSV350...1200MWA341
 -2
 Governor no. : 0 420 085 147

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366A

1st version kW : 115.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 12.00...12.10

Del.quantity cm3/ : 8.0...8.2

100 s: (7.8...8.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.0...7.6

Del.quantity cm3/ : 0.9...1.1

100 s: (0.6...1.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 80.5...82.5

1000 : (78.5...84.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 99...107

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.00

Speed rpm : 1240...1245 *
2nd rack travel in: 4.00
Speed rpm : 1285...1298
3rd rack travel in: 4.00
Speed rpm : 1325...1355
4th rack travel in: 14.0
Speed rpm : 0.30...1.70
5th rack travel in: 1240...1255
Speed rpm : 11.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 7.00...7.60
Rack travel in mm : 2.00
Speed rpm : 445...505

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 12.00...12.10
2nd speed rpm : 750
Rack travel in m: 12.50...12.60
3rd speed rpm : 1000
Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 74.5...76.5
1000 s: (72.5...78.5)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.00...7.60
Del.quantity cm3/ : 9.0...11.0
1000 s: (6.0...14.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

22° before top dead center with
control-rod travel 6.0...8.0 mm.

* Read off speed set under 1.
Add 45...53 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 94
Edition : 27.02.91
Replaces : 16.08.90
Test oil : ISO-4113

Combination no. : 0 403 476 090

Injection pump
Pump designation : PES6MW100/720RS1144
EP type number : 0 413 406 138
Governor
Governor design. : RSV350...1200MW1A341
-3
Governor no. : 0 420 085 148

Customer spec. information
Customer : MB-NFZ

Engine : OM366A

1st version kW : 92.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.80...9.90

Del.quantity cm3/ : 6.2...6.4

100 s: (6.0...6.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.0...7.6

Del.quantity cm3/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 62.0...64.0

1000 : (60.0...66.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 8.80

Speed rpm : 1235...1240 *
2nd rack travel in: 4.00
Speed rpm : 1270...1283
3rd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1450
Speed rpm : 0.30...1.70
5th rack travel in: 1245...1260
Speed rpm : 8.80

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 7.3

Testing:

Speed rpm : 100

Minimum rack travel: 19.00

Speed rpm : 350

Rack travel in mm : 7.00...7.60

Rack travel in mm : 2.00

Speed rpm : 415...475

TORQUE CONTROL

Dimension a mm : 0.70

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 9.80...9.90

2nd speed rpm : 800

Rack travel in m: 10.50...10.60

3rd speed rpm : 950

Rack travel in m: 10.10...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del.quantity cm³/ : 60.5...63.5

1000 s: (58.0...66.0)

Spread cm³ : 5.00

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.80

Speed rpm : 1235...1240

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 78.0...88.0

1000 s: (75.0...91.0)

LOW IDLE

K17

Speed rpm : 350
Rack travel in mm : 7.00...7.60
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Check pneumatic shutoff device at 3.0 bar air pressure

* Read off speed set under 1.

Add 35...43 min⁻¹ to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Note remarks

Speed rpm : 1340...1345 *
2nd rack travel in: 4.00
Speed rpm : 1387...1400
3rd rack travel in: 4.00
Speed rpm : 1420...1450
4th rack travel in: 1600
Speed rpm : 0.30...1.70
5th rack travel in: 1345...1355
Speed rpm : 11.60

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.20...6.90
Rack travel in mm : 2.00
Speed rpm : 420...480

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 250
Rack travel mm : 11.30...11.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.70...10.80
2nd pressure hPa : 400
Rack travel in m: 12.10...12.40
3rd pressure hPa : 1000
Rack travel in m: 12.60...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 86.5...89.5
1000 s: (84.0...92.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 53.0...55.0
1000 s: (51.0...57.0)

BREAKAWAY

K19

1st version
1mm rack travel less than

full load rack tr: 11.60
Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.20...6.90
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

* Read off speed set under 1.
Add 47...55 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

Test hydr. locking device for starting
with 500...1000 hPa air pressure.

Check pneumatic shutoff device at 3.0
bar air pressure

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 96
Edition : 27.02.91
Replaces : 16.08.90
Test oil : ISO-4113

Combination no. : 0 403 476 092

Injection pump
Pump designation : PES6MW100/720RS1120
EP type number : 0 413 406 112
Governor
Governor design. : RSV350...1300MWA342
-1
Governor no. : 0 420 085 150

Customer-spec. information
Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 142.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.00...13.10

Del. quantity cm3/ : 9.5...9.7

100 s: (9.3...9.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.2...6.9

Del. quantity cm3/ : 1.0...1.2

100 s: (0.6...1.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del. quantity : 95.0...97.0

1000 : (93.0...99.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 106...114

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.00

Speed rpm : 1340...1345 *

2nd rack travel in: 4.00

Speed rpm : 1397...1410
3rd rack travel in: 4.00
Speed rpm : 1460...1490
4th rack travel in: 1600
Speed rpm : 0.30...1.70
5th rack travel in: 1335...1350
Speed rpm : 12.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.20...6.90
Rack travel in mm : 2.00
Speed rpm : 420...480

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.60...11.70

Measurement

Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 12.10...12.20
2nd pressure hPa : 360
Rack travel in m: 12.60...12.90
3rd pressure hPa : 1000
Rack travel in m: 13.00...13.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm3/ : 83.0...86.0
1000 s: (80.5...88.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 50.0...52.0
1000 s: (48.0...54.0)

BREAKAWAY

1st version

K21

1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 85.0...95.0
1000 s: (92.0...98.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.20...6.90
Del.quantity cm3/ : 10.0...12.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

* Read off speed set under 1.
Add 57...65 min-1 to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

Check pneumatic shutoff device at 3.0
bar air pressure

Test hydr. locking device for starting
with 500...1000 hPa air pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 B
 Edition : 27.02.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 097
 Injection pump
 Pump designation : PES6MM100/72ORS1131-
 1
 EP type number : 0 413 406 165
 Governor
 Governor design. : RSV350...1300MWOA342
 -2
 Governor no. : 0 420 085 157

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 177.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 15.60...15.70

Del.quantity cm³/ : 12.0...12.2

100 s: (11.8...12.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.0...7.5

Del.quantity cm³/ : 1.0...1.2

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 120.0...122.0

1000 : (118.0...124.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 103...111

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 14.6

Speed rpm : 1340...1345 *
2nd rack travel in: 4.00
Speed rpm : 1432...1445
3rd rack travel in: 4.00
Speed rpm : 1460...1490
4th rack travel in: 1600
Speed rpm : 0.30...1.70
5th rack travel in: 1340...1350
Speed rpm : 14.60

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 7.00...7.50
Rack travel in mm : 2.00
Speed rpm : 430...490

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 270
Rack travel mm : 12.60...12.70

Measurement:

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.70...10.80
2nd pressure hPa : 500
Rack travel in m: 14.30...14.60
3rd pressure hPa : 1000
Rack travel in m: 15.60...15.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 109.0...111.0
1000 s: (106.5...114.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 31.0...33.0
1000 s: (29.0...35.0)

BREAKAWAY

K23

1st version
1mm rack travel less than

full load rack tr: 14.60
Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.00...7.50
Del.quantity cm3/ : 10.0...12.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:
* Read off speed set under 1.
Add 92...100 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

Test hydr. locking device for starting
with 500...1000 hPa air pressure.

Check pneumatic shutoff device at 3.0
bar air pressure

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 5,6 Q
 Edition : 19.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 099
 Injection pump
 Pump designation : PES6MM100/320RS1209
 EP type number : 0 413 406 200
 Governor
 Governor design. : RSV300...750MM1A802
 Governor no. : 0 420 085 113

Customer-spec. information
 Customer : MAN

Engine : D0826LE20

1st version kW : 116.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 681 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.20...3.30
 : (3.15...3.35)
 Rack travel in mm : 14.00...16.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.50...14.60

Del.quantity cm3/ : 14.3...14.5

100 s: (14.1...14.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 6.6...7.4
 Del.quantity cm3/ : 3.4...3.8
 100 s: (3.1...4.0)
 Spread cm3 : 0.6
 100 s: (0.9)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del.quantity : 143.0...145.0
 1000 : (141.0...147.0)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 34...42

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

Testing:
 1st rack travel in: 10.80
 Speed rpm : 750...755

2nd rack travel in: 4.00
Speed rpm : 777...790
4th rack travel in: 950
Speed rpm : 0.30...1.70

attained with the calculated speed

LOW IDLE 1

Control lever

position degrees: 14...22

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 7.0

Speed rpm : 300

Rack travel in mm : 6.60...7.40

Rack travel in mm : 2.00

Speed rpm : 310...370

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80

Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 110.0...130.0
1000 s: (107.0...133.0)

HIGH IDLE

1st version

Speed rpm : 784

Rack travel in mm : 4.00

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.60...7.40

Del.quantity cm3/ : 34.0...38.0

1000 s: (31.5...40.5)

Spread cm3 : 6.00

1000 s: (9.00)

Remarks:

: MAN #3-7111

Start-of-delivery mark is at start of
delivery of cylinder 1

* Read off speed set under 1.

Add 27...35 min-1 to this speed. The
control-rod travel under 2. must be

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 B 2
 Edition : 27.02.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 100
 Injection pump
 Pump designation : PES6MW100/720RS1131-
 1
 EP type number : 0 413 406 165
 Governor
 Governor design. : RSV350...1300MWOA342
 -3
 Governor no. : 0 420 085 162

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 157.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness : 6.00X1.50X600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300
 Rack travel in mm : 13.20...13.30
 Del.quantity cm3/ : 10.2...10.4
 100 s: (10.0...10.6)
 Spread cm3 : 0.3
 100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 7.0...7.5
 Del.quantity cm3/ : 1.0...1.2
 100 s: (0.6...1.5)
 Spread cm3 : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 1000
 Del.quantity : 102.0...104.0
 1000 : (100.0...106.0)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 95...103

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.20
Speed rpm : 1340...1345 *
2nd rack travel in: 4.00
Speed rpm : 1390...1403
3rd rack travel in: 4.00
Speed rpm : 1420...1450
4th rack travel in: 1550
Speed rpm : 0.30...1.70
5th rack travel in: 1340...1350
Speed rpm : 12.20

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 7.00...7.50
Rack travel in mm : 2.00
Speed rpm : 480...540

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 190
Rack travel mm : 11.00...11.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.00...10.10
2nd pressure hPa : 350
Rack travel in m: 12.40...12.70
3rd pressure hPa : 1000
Rack travel in m: 13.20...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 89.0...92.0
1000 s: (86.5...94.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 36.0...38.0
1000 s: (34.0...40.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.00...7.50
Del.quantity cm³/ : 10.0...12.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
* Read off speed set under 1.
Add 50...58 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

Test hydr. locking device for starting
with 500...1000 hPa air pressure.

Check pneumatic shutoff device at 3.0
bar air pressure

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 B 3
 Edition : 27.02.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 101
 Injection pump
 Pump designation : PES6MW100/720RS1131-
 1
 EP type number : 0 413 406 165
 Governor
 Governor design. : RSV350...1300MWA342
 -4
 Governor no. : 0 420 085 163

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.30...11.40

Del.quantity cm3/ : 7.7...7.9

100 s: (7.5...8.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.0...7.5

Del.quantity cm3/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 77.0...79.0

1000 : (75.0...81.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 103...111

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.30
Speed rpm : 1340...1345 *
2nd rack travel in: 4.00
Speed rpm : 1390...1403
3rd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1550
Speed rpm : 0.30...1.70
5th rack travel in: 1340...1350
Speed rpm : 10.30

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 7.00...7.50
Rack travel in mm : 2.00
Speed rpm : 480...540

TORQUE CONTROL

Dimension a mm : 0.90
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 11.30...11.40
2nd speed rpm : 800
Rack travel in m: 11.60...11.80
3rd speed rpm : 600
Rack travel in m: 12.20...12.30

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 190
Rack travel mm : 11.00...11.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.70
2nd pressure hPa : 300
Rack travel in m: 11.70...12.00
3rd pressure hPa : 1000
Rack travel in m: 12.30...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

L01

Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm3/ : 71.0...74.0
1000 s: (68.5...76.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 64.0...67.0
1000 s: (61.5...69.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 36.0...38.0
1000 s: (34.0...40.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.00...7.50
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

* Read off speed set under 1.
Add 50...58 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

Test hydr. locking device for starting
with 500...1000 hPa air pressure.

Check pneumatic shutoff device at 3.0
bar air pressure

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 D 5
 Edition : 22.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 103
 Injection pump
 Pump designation : PES6MW100/720RS1131
 EP type number : 0 413 406 123
 Governor
 Governor design. : RSV350...1200MWOA342
 -6
 Governor no. : 0 420 085 169

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 92.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 10.10...10.20

Del.quantity cm3/ : 6.4...6.6

100 s: (6.2...6.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.2...6.9

Del.quantity cm3/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 750

Del.quantity : 64.0...66.0

1000 : (62.0...68.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.10
Speed rpm : 1235...1240 *
2nd rack travel in: 4.00
Speed rpm : 1270...1283
3rd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1450
Speed rpm : 0.30...1.70
5th rack travel in: 1245...1265
Speed rpm : 9.10

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.20...6.90
Rack travel in mm : 2.00
Speed rpm : 440...500

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 10.10...10.20
2nd speed rpm : 600
Rack travel in m: 10.70...10.80
3rd speed rpm : 1000
Rack travel in m: 10.40...10.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Rack travel mm : 10.30...10.40

Measurement

Speed 1/min : 500

1st pressure hPa : 180
Rack travel in m: 10.50...10.70
3rd pressure hPa : 750
Rack travel in m: 10.70...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 600
Del.quantity cm³/ : 58.0...61.0
1000 s: (55.5...63.5)
Spread cm³ : 5.00
1000 s: (7.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 47.0...49.0
1000 s: (45.0...51.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10
Speed rpm : 1235...1240

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.20...6.90
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

* Read off speed set under 1.
Add 35...43 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

Test hydr. locking device for starting
with 500...1000 hPa air pressure.

Check pneumatic shutoff device at 3.0
bar air pressure

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 D 6
 Edition : 22.03.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 476 104

Injection pump
 Pump designation : PES6MW100/720RS1131
 EP type number : 0 413 406 123
 Governor
 Governor design. : RSV350...1200MWOA342
 -7
 Governor no. : 0 420 085 170

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 100.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 10.50...10.60

Del.quantity cm3/ : 7.4...7.6
 100 s: (7.2...7.8)

Spread cm3 : 0.3
 100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 6.2...6.9
 Del.quantity cm3/ : 0.9...1.3
 100 s: (0.6...1.5)

Spread cm3 : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Aneroid pressure h: 750
 Del.quantity : 74.0...76.0
 1000 : (72.0...78.0)

Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 100...108

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.50
Speed rpm : 1240...1245 *
2nd rack travel in: 4.00
Speed rpm : 1280...1293
3rd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1450
Speed rpm : 0.30...1.70
5th rack travel in: 1240...1255
Speed rpm : 9.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.20...6.90
Rack travel in mm : 2.00
Speed rpm : 450...530

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200
Rack travel in m: 10.50...10.60
2nd speed rpm : 600
Rack travel in m: 11.30...11.40
3rd speed rpm : 1000
Rack travel in m: 10.90...11.10

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 250
Rack travel mm : 10.60...10.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.30...10.40
2nd pressure hPa : 300
Rack travel in m: 10.90...11.10
3rd pressure hPa : 750
Rack travel in m: 11.30...11.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 600

Del.quantity cm3/ : 67.0...70.0
1000 s: (64.5...72.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 47.0...49.0
1000 s: (45.0...51.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.20...6.90
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

* Read off speed set under 1.
Add 40...48 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

Test hydr. locking device for starting
with 500...1000 hPa air pressure.

Check pneumatic shutoff device at 3.0
bar air pressure

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 D 7
 Edition : 22.03.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 105
 Injection pump
 Pump designation : PES6MW100/720RS1131
 EP type number : 0 413 406 123
 Governor
 Governor design. : RSV350...1200MWA342
 -8
 Governor no. : 0 420 085 171

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 114.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 35...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 10.90...11.00

Del.quantity cm3/ : 8.4...8.6

100 s: (8.2...8.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.2...6.9

Del.quantity cm3/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 750

Del.quantity : 84.0...86.0

1000 : (82.0...88.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.90
Speed rpm : 1240...1245
2nd rack travel in: 4.00
Speed rpm : 1285...1298
3rd rack travel in: 4.00
Speed rpm : 1325...1355
4th rack travel in: 1450
Speed rpm : 0.30...1.70
5th rack travel in: 1240...1255
Speed rpm : 9.90

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.20...6.90
Rack travel in mm : 2.00
Speed rpm : 420...500

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 10.90...11.00
2nd speed rpm : 600
Rack travel in m: 11.70...11.80
3rd speed rpm : 1000
Rack travel in m: 11.00...11.20

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 300
Rack travel mm : 10.70...10.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.30...10.40
2nd pressure hPa : 400
Rack travel in m: 11.30...11.50
3rd pressure hPa : 750
Rack travel in m: 11.70...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 600

Del.quantity cm3/ : 78.0...81.0
1000 s: (75.5...83.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 47.0...49.0
1000 s: (45.0...51.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.20...6.90
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

* Read off speed set under 1.
Add 45...53 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

Test hydr. locking device for starting
with 500...1000 hPa air pressure.

Check pneumatic shutoff device at 3.0
bar air pressure

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,7 B
Edition : 19.03.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 476 106
Injection pump
Pump designation : PES6MW100/32ORS1213
EP type number : 0 413 406 203
Governor
Governor design. : RSV350...750MW7A345
Governor no. : 0 420 085 168

Customer-spec. information
Customer : NAVISTAR

Engine : DT-466

1st version kW : 159.0
Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35
: (3.20...3.40)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.20...14.30

Del.quantity cm3/ : 16.2...16.4

100 s: (16.0...16.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 4.9...5.1

Del.quantity cm3/ : 0.8...1.2

100 s: (0.5...1.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 162.5...164.5

1000 : (160.5...166.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 90...98

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 13.20

Speed rpm : 750...760

2nd rack travel in: 4.00

Speed rpm : 795...805

3rd rack travel in: 4.00

Speed rpm : 800...810

4th rack travel in: 850

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 68...76

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 5.0

Testing:

Speed rpm : 100

Minimum rack travel: 19.00

Speed rpm : 350

Rack travel in mm : 4.90...5.10

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.20

Speed rpm : 750...760

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 160.0...180.0

1000 s: (155.0...185.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 4.90...5.10

Del.quantity cm3/ : 8.0...12.0

1000 s: (5.5...14.5)

Spread cm3 : 3.50

1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 D 8
Edition : 28.03.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 476 107
Injection pump
Pump designation : PES6MW100/720RS1131
EP type number : 0 413 406 123
Governor
Governor design. : RSV350...1300MW0A342
-5
Governor no. : 0 420 085 172

Customer-spec. information
Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 122.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 047
Inlet press., bar : 1.50
Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300
Rack travel in mm : 10.90...11.00
Del.quantity cm3/ : 8.4...8.6
100 s: (8.2...8.8)
Spread cm3 : 0.3
100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 6.2...6.9
Del.quantity cm3/ : 0.9...1.3
100 s: (0.6...1.5)
Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1300
Aneroid pressure h: 750
Del.quantity : 84.0...86.0
1000 : (82.0...88.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 100...108

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.90
Speed rpm : 1340...1345 *
2nd rack travel in: 4.00
Speed rpm : 1380...1393
3rd rack travel in: 4.00
Speed rpm : 1400...1430
4th rack travel in: 1550
Speed rpm : 0.30...1.70
5th rack travel in: 1345...1360
Speed rpm : 9.90

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.20...6.90
Rack travel in mm : 2.00
Speed rpm : 420...500

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.90...11.00
2nd speed rpm : 600
Rack travel in m: 11.70...11.80
3rd speed rpm : 1100
Rack travel in m: 11.00...11.20

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 300
Rack travel mm : 10.70...10.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.30...10.40
2nd pressure hPa : 400
Rack travel in m: 11.30...11.50
3rd pressure hPa : 750
Rack travel in m: 11.70...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 600

Del.quantity cm3/ : 78.0...81.0
1000 s: (75.5...83.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 47.0...49.0
1000 s: (45.0...51.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.20...6.90
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

* Read off speed set under 1.
Add 40...48 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

Test hydr. locking device for starting
with 500...1000 hPa air pressure.

Check pneumatic shutoff device at 3.0
bar air pressure

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,3 B 1
Edition : 19.03.91
Replaces : 16.01.91
Test oil : ISO-4113

Combination no. : 0 403 486 104

Injection pump
Pump designation : PES6MW100/321RS1208
EP type number : 0 413 406 199
Governor
Governor design. : RSV300...1100MWA339
-3

Governer no. : 0 420 085 165

Customer-spec. information
Customer : MAN

Engine : D0826LED10

1st version kW : 165.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 14.00...14.10

Del.quantity cm3/ : 13.5...13.7

100 s: (13.3...13.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0
Rack travel in mm : 5.3...5.5
Del.quantity cm3/ : 1.1...1.5
100 s: (0.8...1.7)

Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1000

Del.quantity : 135.0...137.0

1000 : (133.0...139.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 90...98

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 13.00
Speed rpm : 1150...1160
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.4

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 300
Rack travel in mm : 5.30...5.50

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.20...11.30

Measurement
Speed 1/min : 500

1st pressure hPa : 170
Rack travel in m: 11.50...11.60
2nd pressure hPa : 400
Rack travel in m: 12.40...12.70
3rd pressure hPa : 1000
Rack travel in m: 14.00...14.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 135.5...138.5
1000 s: (133.0...141.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm³/ : 139.0...142.0
1000 s: (136.5...144.5)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (127.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.30...5.50
Del.quantity cm³/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
: MAN #3-7102
Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 h
 Edition : 09.04.91
 Replaces : 24.10.90
 Test oil : ISO-4113
 Combination no. : 9 400 085 307
 Injection pump
 Pump designation : PES4A95D410RS2774
 EP type number : 9 400 084 019
 Governor
 Governor design. : RGV300...1300AB1228-
 1L
 Governor no. : 9 420 080 268

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 364 A

1st version kW : 85.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 006

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.45)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.60...10.70

Del.quantity cm3/ : 9.0...9.2

100 s: (8.8...9.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.1

Del.quantity cm3/ : 0.6...1.2

100 s: (0.4...1.4)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30...2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 90.0...92.0

1000 : (88.0...94.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 107...115

Testing:

1st rack travel in: 9.60

Speed rpm : 1360...1370

2nd rack travel in: 4.00

Speed rpm : 1490...1520

4th rack travel in: 1640

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 62...70

Testing:

Speed rpm : 100

Minimum rack travel: 8.00

Speed rpm : 300

Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

Speed rpm : 420...550

TORQUE CONTROL

Dimension a mm : 0.40

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 10.60...10.70

2nd speed rpm : 800

Rack travel in m: 11.00...11.10

4th speed rpm : 1000

Rack travel in m: 10.80...11.00

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 700

Rack travel mm : 11.00...11.10

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.80...10.00

2nd pressure hPa : 410

Rack travel in m: 10.80...10.90

3rd pressure hPa : 310

Rack travel in m: 10.10...10.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 800

Del.quantity cm3/ : 84.5...87.5

1000 s: (82.0...90.0)

Aneroid pressure h: 700

Speed rpm : 1000

Del.quantity cm3/ : 87.5...90.5

1000 s: (85.0...93.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 61.0...63.0

1000 s: (59.0...65.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60

Speed rpm : 1360...1370

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 78.0...90.0

1000 s: (-)

Rack travel in mm : 12.90...13.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 k
Edition : 09.04.91
Replaces : 16.1.91
Test oil : ISO-4113

Combination no. : 9 400 085 316

Injection pump
Pump designation : PES6A95D410RS2795
EP type number : 9 400 084 020
Governor
Governor design. : RQV300...1400AB1065-18L
Governor no. : 9 420 080 278

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM 366

1st version kW : 100.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
: (3.15...3.35)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.90...10.00

Del.quantity cm3/ : 6.8...7.0
100 s: (6.6...7.2)

Spread cm3 : 0.3
100 s: (0.3)

2nd speed rpm : 300.0
Rack travel in mm : 7.8...8.0
Del.quantity cm3/ : 0.8...1.4
100 s: (0.6...1.6)

Spread cm3 : 0.3
100 s: (0.3)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1500
travel mm : 8.50...8.60
2nd speed rpm : 300
travel mm : 0.80...1.30
3rd speed rpm : 500
travel mm : 2.30...2.80
4th speed rpm : 750
travel mm : 4.10...4.30

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1420
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1400
Del.quantity : 68.5...70.5
1000 : (66.5...72.5)

Spread cm3 : 3.50
1000 : (3.50)

RATED SPEED

1st version
Control lever
position degrees: 106...114

Testing:
1st rack travel in: 8.90
Speed rpm : 1460...1470
2nd rack travel in: 4.00
Speed rpm : 1545...1575
4th rack travel in: 1680
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...74

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 7.80...8.00

CONSTANT REGULATION
Speed rpm : 480...630

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm³/ : 50.0...53.0
1000 s: (47.5...55.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.90
Speed rpm : 1460...1470

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...90.0
1000 s: (75.0...93.0)
Rack travel in mm : 14.00...14.20

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 6,6 p 1
Edition : 09.04.91
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 085 326
Injection pump
Pump designation : PES6A95D410RS2802
EP type number : 9 400 084 025
Governor
Governor design. : RQV350...1300AB1220-6L
Governor no. : 9 420 080 308

Customer-spec. information
Customer : FORD (FNH)

Engine : 6.6 L - TC

1st version kW : 139.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25
: (3.10...3.30)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.20...13.30

Del. quantity cm3/ : 10.1...10.3
100 s: (9.9...10.6)

Spread cm3 : 0.3
100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 6.0...6.2
Del. quantity cm3/ : 1.5...2.1
100 s: (1.3...2.2)
Spread cm3 : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450
travel mm : 8.50...8.60
2nd speed rpm : 350
travel mm : 1.10...1.80
3rd speed rpm : 500
travel mm : 2.70...3.10
4th speed rpm : 700
travel mm : 3.50...3.90
5th speed rpm : 1000
travel mm : 4.90...5.30

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1540
Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300
Aneroid pressure h: 900
Del.quantity : 101.5...103.5
1000 : (99.0...106.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 111...119

Testing:

1st rack travel in: 12.20
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1490...1520
4th rack travel in: 1630
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 65...73

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION

Speed rpm : 370...440

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.20...13.30

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 11.20...11.50

2nd pressure hPa : 410

Rack travel in m: 11.80...12.10

3rd pressure hPa : 510

Rack travel in m: 12.70...12.80

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 800
Del.quantity cm³/ : 99.5...103.5
1000 s: (97.5...105.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 76.5...78.5
1000 s: (74.0...81.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 155.0...175.0
1000 s: (152.0...178.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.00...6.20
Del.quantity cm³/ : 15.0...21.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 g 5
 Edition : 09.04.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 329
 Injection pump
 Pump designation : PES6A95D410RS2772
 EP type number : 9 400 084 018
 Governor
 Governor design. : RQV300...1300AB1256L
 Governor no. : 9 420 080 297

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 150.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 006

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.10...11.20

Del.quantity cm³/ : 9.8...10.0

100 s: (9.6...10.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.1

Del.quantity cm³/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.80...1.30

2nd speed rpm : 500
 travel mm : 2.30...2.80

3rd speed rpm : 750
 travel mm : 4.10...4.30

4th speed rpm : 1500
 travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:

1st rack travel in: 10.10
Speed rpm : 1360...1370
2nd rack travel in: 4.00
Speed rpm : 1490...1520
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 70...78

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

Speed rpm : 420...550

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.10...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.40...9.70
2nd pressure hPa : 450
Rack travel in m: 10.60...10.70
3rd pressure hPa : 300
Rack travel in m: 9.90...10.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 700
Del.quantity cm³/ : 86.0...89.0
1000 s: (83.5...91.5)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 59.5...61.5
1000 s: (57.5...63.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1360...1370

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...90.0
1000 s: (-)
Rack travel in mm : 13.60...13.80

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.90...7.10
Del.quantity cm³/ : 8.0...14.0
1000 s: (6.0...16.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 i
Edition : 09.04.91
Replaces : 16.1.91
Test oil : ISO-4113

Combination no. : 9 400 085 333

Injection pump
Pump designation : PES4A95D410RS2805
EP type number : 9 400 084 026
Governor
Governor design. : RQV300...1400AB1065-21L
Governor no. : 9 420 080 303

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM 364

1st version kW : 66.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
: (3.15...3.35)

Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.60...9.70

Del.quantity cm3/ : 7.0...7.2

100 s: (6.8...7.4)

Spread cm3 : 0.3

100 s: (0.3)

2nd speed rpm : 300.0

Rack travel in mm : 7.4...7.6

Del.quantity cm3/ : 0.5...1.1

100 s: (0.3...1.3)

Spread cm3 : 0.3

100 s: (0.3)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1500

travel mm : 8.50...8.60

2nd speed rpm : 300

travel mm : 0.80...1.30

3rd speed rpm : 500

travel mm : 2.30...2.80

4th speed rpm : 750

travel mm : 4.10...4.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1420

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 70.0...72.0

1000 : (68.0...74.0)

Spread cm3 : 3.50

1000 : (3.50)

RATED SPEED

1st version
Control lever
position degrees: 106...114

Testing:
1st rack travel in: 8.60
Speed rpm : 1460...1470
2nd rack travel in: 4.00
Speed rpm : 1540...1570
4th rack travel in: 1680
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 65...73

Testing:
Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 300
Rack travel in mm : 7.40...7.60

CONSTANT REGULATION
Speed rpm : 480...630

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm³/ : 54.5...57.5
1000 s: (52.0...60.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.60
Speed rpm : 1460...1470

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...90.0
1000 s: (75.0...93.0)
Rack travel in mm : 13.80...14.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 h
 Edition : 09.04.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 340
 Injection pump
 Pump designation : PES6A95D410RS2795
 EP type number : 9 400 084 020
 Governor
 Governor design. : RSV350...1250A0B1150
 -5L
 Governor no. : 9 420 083 249

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366

1st version kW : 94.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 8.60...8.70

Del.quantity cm³/ : 6.2...6.4

100 s: (6.0...6.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.9...7.1

Del.quantity cm³/ : 0.9...1.5

100 s: (0.7...1.7)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del.quantity : 62.0...64.0

1000 : (60.0...66.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 108...116

Testing:

1st rack travel in: 7.60

Speed rpm : 1340...1350

2nd rack travel in: 4.00

Speed rpm : 1380...1410

4th rack travel in: 1550

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 78...86

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6.5

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 350

Rack travel in mm : 6.90...7.10

Rack travel in mm : 2.00

Speed rpm : 445...505

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 8.60...8.70

2nd speed rpm : 500

Rack travel in m: 8.60...8.80

5th speed rpm : 400

Rack travel in m: 9.80...10.40

BREAKAWAY

1st version

1st rack travel less than

full load rack tr: 7 0

Speed rpm : 1300...1350

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 90.0...110.0

1000 s: (87.0...113.0)

Rack travel in mm : 14.10...14.30

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.90...7.10

Del.quantity cm3/ : 9.0...15.0

1000 s: (7.0...17.0)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:

APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 k
Edition : 09.04.91
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 085 341

Injection pump
Pump designation : PES4A95D410RS2805
EP type number : 9 400 084 026
Governor
Governor design. : RSV350...1300A081150
-6L
Governor no. : 9 420 083 250

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM 364

1st version kW : 60.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 33...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
: (3.15...3.35)

Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 9.40...9.50

Del.quantity cm3/ : 5.8...6.0
100 s: (5.6...6.2)

Spread cm3 : 0.3
100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 7.4...7.6
Del.quantity cm3/ : 0.6...1.2
100 s: (0.4...1.4)

Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1300
Del.quantity : 58.5...60.5
1000 : (56.5...62.5)

Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 107...115

Testing:
1st rack travel in: 8.40
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1390...1420
4th rack travel in: 1550

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 78...86

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 7.0

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 350

Rack travel in mm : 7.40...7.60

Rack travel in mm : 2.00

Speed rpm : 470...530

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 9.40...9.50

2nd speed rpm : 500

Rack travel in m: 9.40...9.60

5th speed rpm : 400

Rack travel in m: 10.60...11.20

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.40

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 88.0...100.0

1000 s: (85.0...103.0)

Rack travel in mm : 14.80...15.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 7.40...7.60

Del.quantity cm3/ : 6.0...12.0

1000 s: (4.0...14.0)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,6 c
Edition : 09.04.91
Replaces : 10.85
Test oil : ISO-4113

Combination no. : 9 400 087 302

Injection pump
Pump designation : PE6P110A720RS476
EP type number : 9 400 087 037
Governor
Governor design. : RQ300/1000PA718
Governor no. : 9 420 080 169

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM 355/LA

1st version kW : 235.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 004

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.35...3.45
: (3.30...3.50)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.20...13.30

Del.quantity cm3/ : 19.1...19.3

100 s: (18.8...19.6)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.7...1.3

100 s: (0.4...1.5)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 700

Del.quantity : 191.0...193.0

1000 : (188.0...196.0)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.20

Speed rpm : 1045...1060

2nd rack travel in: 4.00

Speed rpm : 1100...1130

4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 405...455

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 13.20...13.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.80
2nd pressure hPa : 450
Rack travel in m: 12.20...12.30
3rd pressure hPa : 200
Rack travel in m: 10.30...10.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 600
Del.quantity cm³/ : 184.0...188.0
1000 s: (181.0...191.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 104.5...107.5
1000 s: (102.0...110.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20

M01

Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...180.0
1000 s: (156.0...184.0)
Rack travel in mm : 13.30...14.30

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,6 d
Edition : 09.04.91
Replaces : 10.85
Test oil : ISO-4113

Combination no. : 9 400 087 320

Injection pump
Pump designation : PE6P110A720RS476
EP type number : 9 400 087 037
Governor
Governor design. : RQV300...1000PA751
Governor no. : 9 420 080 196

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM 355/LA

1st version kW : 235.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 004

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.35...3.45
: (3.30...3.50)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.20...13.30

Del.quantity cm3/ : 19.1...19.3

100 s: (18.8...19.6)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.7...1.3

100 s: (0.4...1.5)

Spread cm3 : 0.4

100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1025

travel mm : 8.50...8.60

2nd speed rpm : 300

travel mm : 1.20...1.60

3rd speed rpm : 450

travel mm : 2.80...3.10

4th speed rpm : 700

travel mm : 4.90...5.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1025

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 700

Del.quantity : 191.0...193.0

1000 : (188.0...196.0)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 119...127

Testing:
1st rack travel in: 12.20
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1115...1145
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 68...76

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 240...310

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 13.20...13.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.80
2nd pressure hPa : 450
Rack travel in m: 12.20...12.30
3rd pressure hPa : 200
Rack travel in m: 10.30...10.60

START CUT-OUT

Speed 1/min : 250 (270)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 600
Del.quantity cm³/ : 184.0...188.0
1000 s: (181.0...191.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 104.5...107.5
1000 s: (102.0...110.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...180.0
1000 s: (156.0...184.0)
Rack travel in mm : 13.30...14.30

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 i 3
Edition : 09.04.91
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 087 429
Injection pump
Pump designation : PES6P120A720RS3256-1
EP type number : 9 400 087 077
Governor
Governor design. : RQV300...1300PA963
Governor no. : 9 420 080 283

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 156.6
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
 : (4.25...4.45)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 15.7...15.9

100 s: (15.4...16.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 8.6...8.9

Del.quantity cm³/ : 1.0...1.6
100 s: (0.7...1.9)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.20...1.40

2nd speed rpm : 800
travel mm : 4.50...4.80

3rd speed rpm : 1350
travel mm : 8.20...8.60

4th speed rpm : 1450
travel mm : 9.00...10.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 157.0...159.0

1000 : (154.0...162.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:

1st rack travel in: 11.90
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1420...1450
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 82...90

Testing:

Speed rpm : 200
Minimum rack travel: 10.00
Speed rpm : 300
Rack travel in mm : 8.60...8.90

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.60...10.90

Measurement

Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 11.10...11.30
2nd pressure hPa : 500
Rack travel in m: 12.10...12.30
3rd pressure hPa : 1000
Rack travel in m: 12.80...13.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 800

Del.quantity cm³/ : 142.0...146.0
1000 s: (139.0...149.0)
Spread cm³ : 8.00
1000 s: (12.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 65.0...67.0
1000 s: (62.0...70.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (96.0...124.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.60...8.90
Del.quantity cm³/ : 10.0...16.0
1000 s: (7.0...19.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 i 4
 Edition : 09.04.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 430
 Injection pump
 Pump designation : PES6P120A72ORS3256-1
 EP type number : 9 400 087 077
 Governor
 Governor design. : RQV300...1300PA963-1
 Governor no. : 9 420 080 284

Customer spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 171.5
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
 : (4.25...4.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.90...14.00

Del.quantity cm3/ : 18.0...18.2

100 s: (17.7...18.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 8.6...8.9
 Del.quantity cm3/ : 1.0...1.6
 100 s: (0.7...1.9)
 Spread cm3 : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.20...1.40
 2nd speed rpm : 800
 travel mm : 4.50...4.80
 3rd speed rpm : 1350
 travel mm : 8.20...8.60
 4th speed rpm : 1450
 travel mm : 9.00...10.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1350
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 1000
 Del.quantity : 180.0...182.0
 1000 : (177.0...185.0)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:

1st rack travel in: 12.90
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1445...1475
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 82...90

Testing:

Speed rpm : 200
Minimum rack travel: 10.00
Speed rpm : 300
Rack travel in mm : 8.60...8.90

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.60...10.90

Measurement

Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 11.10...11.30
2nd pressure hPa : 700
Rack travel in m: 13.00...13.20
3rd pressure hPa : 1000
Rack travel in m: 13.70...13.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 800

MD7

Del.quantity cm3/ : 164.0...168.0
1000 s: (161.0...171.0)
Spread cm3 : 8.00
1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/ : 65.0...67.0
1000 s: (62.0...70.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.90
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...120.0
1000 s: (96.0...124.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.60...8.90
Del.quantity cm3/ : 10.0...16.0
1000 s: (7.0...19.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 i 2
Edition : 09.04.91
Replaces : 24.10.90
Test oil : ISO-4113

Combination no. : 9 400 087 431

Injection pump
Pump designation : PES6P120A720RS3256
EP type number : 9 400 087 071
Governor
Governor design. : RQV300...1300PA963-2
Governor no. : 9 420 080 285

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 141.7
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
: (4.25...4.45)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.60...11.70

Del.quantity cm3/ : 13.4...13.6

100 s: (13.1...13.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 8.6...8.9
Del.quantity cm3/ : 1.0...1.6
100 s: (0.7...1.9)

Spread cm3 : 0.8
100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.20...1.40
2nd speed rpm : 800
travel mm : 4.50...4.80
3rd speed rpm : 1350
travel mm : 8.20...8.60
4th speed rpm : 1450
travel mm : 9.00...10.00

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1350
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1300
Aneroid pressure h: 1000
Del.quantity : 134.0...136.0
1000 : (131.0...139.0)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:

1st rack travel in: 10.60
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 82...90

Testing:

Speed rpm : 200
Minimum rack travel: 10.00
Speed rpm : 300
Rack travel in mm : 8.60...8.90

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.60...10.90

Measurement

Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 11.10...11.30
2nd pressure hPa : 700
Rack travel in m: 11.80...12.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 800
Del. quantity cm3/ : 114.0...118.0
1000 s: (111.0...121.0)

Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 65.0...67.0
1000 s: (62.0...70.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.60
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 90.0...110.0
1000 s: (86.0...114.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.60...8.90
Del. quantity cm3/ : 10.0...16.0
1000 s: (7.0...19.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 i 5
 Edition : 09.04.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 450
 Injection pump
 Pump designation : PES6P120A720RS3256
 EP type number : 9 400 087 071
 Governor
 Governor design. : RQV300...1300PA978
 Governor no. : 9 420 080 296

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 126.8
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
 : (4.25...4.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1300
 Rack travel in mm : 11.80...11.90
 Del.quantity cm3/ : 13.8...14.0
 100 s: (13.5...14.3)
 Spread cm3 : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 8.6...8.9
 Del.quantity cm3/ : 1.0...1.6
 100 s: (0.7...1.9)
 Spread cm3 : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.20...1.40
 2nd speed rpm : 800
 travel mm : 4.50...4.80
 3rd speed rpm : 1350
 travel mm : 8.20...8.60
 4th speed rpm : 1450
 travel mm : 9.00...10.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1350
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 1000
 Del.quantity : 138.0...140.0
 1000 : (135.0...143.0)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:

1st rack travel in: 10.80
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 82...90

Testing:

Speed rpm : 200
Minimum rack travel: 10.00
Speed rpm : 300
Rack travel in mm : 8.60...8.90

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.40...10.70

Measurement

Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 10.90...11.10
2nd pressure hPa : 700
Rack travel in m: 11.60...11.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm3/ : 118.0...122.0
1000 s: (115.0...125.0)

Spread cm3 : 8.00
1000 s: (12.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 61.0...63.0
1000 s: (58.0...66.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.80
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 90.0...110.0
1000 s: (86.0...114.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.60...8.90
Del.quantity cm3/ : 10.0...16.0
1000 s: (7.0...19.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 12,7 n1
 Edition : 19.10.90
 Replaces : 7.3.88
 Test oil : ISO-4113

Combination no. : 0 400 648 124

Injection pump
 Pump designation : PE8A95D410LS2588
 EP type number : 0 410 698 989
 Governor
 Governor design. : RGV300...1150AB1088L
 Governor no. : 0 420 212 115

Customer-spec. information
 Customer : KHD

Engine : F8L413FW

1st version kW : 136.0
 Rated speed : 2300
 2nd version kW : 153.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60
 : (1.45...1.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.60...9.70

Del.quantity cm³/ : 7.8...8.0

100 s: (7.6...8.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm³/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm³ : 0.5

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.10...1.60

2nd speed rpm : 390
 travel mm : 2.20...2.60

3rd speed rpm : 1195
 travel mm : 8.70...9.10

4th speed rpm : 1245
 travel mm : 9.40...9.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1170

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 78.0...80.0

1000 : (76.0...82.0)

Spread cm³ : 3.50
1000 : (6.00)
2nd version
Speed rpm : 1150
Del.quantity cm³/ : 71.0...73.0
1000 s: (69.0...75.0)
Spread cm³ : 3.50
1000 s: (6.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 8.60
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1350
Speed rpm : 0.00...1.00

2nd version
Control lever
position degrees: 61...69

Testing:
1st rack travel in: 8.30
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 67...75

Testing:
Speed rpm : 200
Minimum rack travel: 8.40
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION
Speed rpm : 300...420

TORQUE CONTROL
Dimension a mm : 1.00
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 9.60...9.70
2nd speed rpm : 500
Rack travel in m: 10.30...10.50
3rd speed rpm : 925
Rack travel in m: 10.10...10.30
4th speed rpm : 1030
Rack travel in m: 9.60...9.80

Torque control curve - 2nd version
1st speed rpm : 1150
Rack travel in m: 9.30...9.40
2nd speed rpm : 500
Rack travel in m: 10.3...10.4
3rd speed rpm : 935
Rack travel in m: 10.0...10.2
4th speed rpm : 1045
Rack travel in m: 9.50...9.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 800
Del.quantity cm³/ : 80.5...83.5
1000 s: (78.0...86.0)
Speed rpm : 100
Del.quantity cm³/ : 65.0...70.0
1000 s: (62.5...72.5)

2nd version
Speed rpm : 800
Del.quantity cm³/ : 77.5...80.5
1000 s: (75.0...83.0)
Speed rpm : 650
Del.quantity cm³/ : 93.5...96.5
1000 s: (91.0...99.0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.60
Speed rpm : 1190...1200

2nd version
1mm rack travel less than
full load rack tr: 8.30
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 15.40...15.80

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

When accelerating from engine speed
"0", no voltage in starting solenoid.

2. Set fuel delivery in fuel-delivery
characteristics with stop above the
governor housing.

APPLICATION

Below-ground operation

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 15,8 n1
Edition : 19.10.90
Replaces : 25.3.88
Test oil : ISO-4113

Combination no. : 0 400 649 219

Injection pump
Pump designation : PE10A95D610/4LS2589
EP type number : 0 410 699 994
Governor
Governor design. : P2V300...1150AB1047D

Governer no. : 0 420 214 242

Customer-spec. information
Customer : KHD

Engine : F10L413 FW

1st version kW : 170.0
Rated speed : 2300
2nd version kW : 177.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60
 : (1.45...1.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 10- 9- 4- 3- 6-
 5- 8- 7- 2

Phasing : 0-27-72-99-144-171-
 216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.60...9.70

Del.quantity cm3/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.5

100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.10...1.60

2nd speed rpm : 390

travel mm : 2.20...2.60

3rd speed rpm : 1195

travel mm : 8.70...9.10

4th speed rpm : 1245

travel mm : 9.40...9.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1170

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm³ : 3.50
1000 : (6.00)
2nd version
Speed rpm : 1150
Del.quantity cm³/ : 69.0...71.0
1000 s: (67.0...73.0)
Spread cm³ : 3.50
1000 s: (6.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 8.60
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1350
Speed rpm : 0.00...1.00

2nd version
Control lever
position degrees: 61...69

Testing:
1st rack travel in: 8.30
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 67...75

Testing:
Speed rpm : 200
Minimum rack travel: 8.40
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION
Speed rpm : 300...420

TORQUE CONTROL
Dimension a mm : 1.00
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 9.60...9.70
2nd speed rpm : 500
Rack travel in m: 10.60...10.70
3rd speed rpm : 880
Rack travel in m: 10.30...10.50
4th speed rpm : 990
Rack travel in m: 9.90...10.10

Torque control curve - 2nd version
1st speed rpm : 1150
Rack travel in m: 9.30...9.40
2nd speed rpm : 500
Rack travel in m: 10.3...10.4
3rd speed rpm : 935
Rack travel in m: 10.0...10.2
4th speed rpm : 1045
Rack travel in m: 9.50...9.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 800
Del.quantity cm³/ : 80.5...83.5
1000 s: (78.0...86.0)
Speed rpm : 100
Del.quantity cm³/ : 65.0...70.0
1000 s: (62.5...72.5)

2nd version
Speed rpm : 800
Del.quantity cm³/ : 75.5...78.5
1000 s: (73.0...81.0)
Speed rpm : 650
Del.quantity cm³/ : 93.5...96.5
1000 s: (91.0...99.0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.60
Speed rpm : 1190...1200

2nd version
1mm rack travel less than
full load rack tr: 8.30
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 15.40...15.80

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

When accelerating from engine speed "0", no voltage in starting solenoid.

2. Set fuel delivery in fuel-delivery characteristics with stop above the governor housing.

APPLICATION

Below-ground operation

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks:

Test sheet : KHD 15,8 r
Edition : 19.10.90
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 649 246

Injection pump
Pump designation : PE10A95D610/4LS2452
EP type number : 0 410 699 998
Governor
Governor design. : RQV300...1325AB1250L
Governor no. : 0 420 212 224

Customer-spec. information
Customer : KHD

Engine : F10L413F

1st version kW : 184.0
Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values —

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)
Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-
5- 8- 7- 2

Phasing : 0-27-72-99-144-171-
216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1325

Rack travel in mm : 8.6C...8.70

Del.quantity cm3/ : 7.4...7.6

100 s: (7.2...7.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm3 : 0.5

100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.00...1.40

2nd speed rpm : 410

travel mm : 1.90...2.30

3rd speed rpm : 460

travel mm : 2.30...2.70

4th speed rpm : 980

travel mm : 5.40...5.80

5th speed rpm : 1380

travel mm : 8.10...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1380

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1325

Del.quantity : 74.0...76.0

1000 : (72.0...78.0)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 7.60
Speed rpm : 1365...1375
2nd rack travel in: 4.00
Speed rpm : 1425...1455
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 81...89

Testing:
Speed rpm : 200
Minimum rack trave: 7.60
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION
Speed rpm : 370...430

TORQUE CONTROL
Dimension a mm : 0.70
Torque control curve - 1st version
1st speed rpm : 1325
Rack travel in m: 8.60...8.70
2nd speed rpm : 735
Rack travel in m: 9.30...9.40
3rd speed rpm : 885
Rack travel in m: 9.10...9.30
4th speed rpm : 1145
Rack travel in m: 8.80...9.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm³/ : 64.5...97.5
 1000 s: (62.0...100.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 7.60
Speed rpm : 1365...1375

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
 1000 s: (117.0...133.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 i 6
 Edition : 24.04.91
 Replaces : 28.3.91
 Test oil : ISO-4113
 Combination no. : 0 400 676 182
 Injection pump
 Pump designation : PE6A90D410RS2524
 EP type number : 0 410 696 179
 Governor
 Governor design. : RSV250...750A7C2201L
 Governor no. : 0 420 232 444

Customer-spec. information
 Customer : DAF

Engine : DH 825

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.30...2.40
 : (2.25...2.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 4.50...5.50

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 9.70...9.80

Del.quantity cm3/ : 8.3...8.4

100 s: (8.1...8.6)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 250.0

Rack travel in mm : 6.3...6.5

Del.quantity cm3/ : 1.9...2.5

100 s: (1.7...2.7)

Spread cm3 : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 83.0...84.0

1000 : (81.0...86.0)

Spread cm3 : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 92...100

Testing:

1st rack travel in: 8.70

Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 780...795
4th rack travel in: 950
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 74...82
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.4
Speed rpm : 250
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 295...355

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.70
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 19.0...25.0
1000 s: (17.0...27.0)
Spread cm3 : 2.50
1000 s: (4.50)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RAB 9,7 b 1
 Edition : 24.04.91
 Replaces : 1.3.91
 Test oil : ISO-4113
 Combination no. : 0 400 846 543
 Injection pump
 Pump designation : PES6A95D420LS2595
 EP type number : 0 410 896 930
 Governor
 Governor design. : RQ200/1100AB1210R
 Governor no. : 0 420 201 643

Customer-spec. information
 Customer : RABA

Engine : D2156MT6U

1st version kW : 188.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.60...12.70

Del.quantity cm3/ : 12.6...12.8

100 s: (12.4...13.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 200.0

Rack travel in mm : 7.3...7.5

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 700

Del.quantity : 126.5...128.5

1000 : (124.5...130.5)

Spread cm3 : 3.00

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 19.9

Testing:

1st rack travel in: 11.60

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1190...1220

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 200

Rack travel in mm : 6.4

Testing:

Speed rpm : 100

Minimum rack trave: 7.60

Speed rpm : 200

Rack travel in mm : 6.30...6.50

Rack travel in mm : 2.00

Speed rpm : 320...360

Speed rpm : 450

Maximum rack trave: 1.00

TORQUE CONTROL

Dimension a mm : 0.60

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.50...12.60

2nd speed rpm : 500

Rack travel in m: 14.20...14.30

3rd speed rpm : 820

Rack travel in m: 13.70...13.90

4th speed rpm : 995

Rack travel in m: 12.90...13.10

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 700

Rack travel mm : 13.80...13.90

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 11.20...11.30

2nd pressure hPa : 250

Rack travel in m: 13.10...13.20

3rd pressure hPa : 150

Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 700

Del.quantity cm3/ : 135.0...138.0

1000 s: (133.0...140.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 82.5...84.5

1000 s: (80.5...86.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 181.0...191.0

1000 s: (178.0...194.0)

Rack travel in mm : 19.50...21.00

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 m 1
Edition : 01.02.90
Replaces : 28.9.89
Test oil : ISO-4113

Combination no. : 0 400 846 569

Injection pump
Pump designation : PES6A95D320RS2770
EP type number : 0 410 896 905
Governor
Governor design. : RQV350...1350AB1236-3R
Governor no. : 0 420 213 112

Customer-spec. information
Customer : NAVISTAR

Engine : DT 360

1st version kW : 127.0
Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 110

Opening
pressure, bar : 250...253

Orifice plate
diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.75...2.85
(2.70...2.90)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1350

Rack travel in mm : 11.40...11.50

Del.quantity cm³/ : 7.5...7.7

100 s : (7.3...7.9)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 1.3...1.7

100 s : (1.0...1.9)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350
travel mm : 7.30...7.50

2nd speed rpm : 1460
travel mm : 8.10...8.50

3rd speed rpm : 550
travel mm : 3.10...3.70

4th speed rpm : 350
travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1350
Aneroid pressure h: 900
Del.quantity : 75.0...77.0
1000 : (73.0...79.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 46...54

Testing:
1st rack travel in: 10.40
Speed rpm : 1415...1445
2nd rack travel in: 4.00
Speed rpm : 1530...1540
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION
Speed rpm : 350...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 11.40...11.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.60...8.90
2nd pressure hPa : 240
Rack travel in m: 9.30...9.40
3rd pressure hPa : 480
Rack travel in m: 10.70...11.10

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 52.0...56.0
1000 s: (50.0...58.0)

BREAKAWAY

M25

1st version
1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1415...1445

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.70...5.90
Del.quantity cm3/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:
: NAVISTAR #
: 1811834C93

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 p 6
Edition : 19.10.90
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 846 581

Injection pump
Pump designation : PES6A95D320RS2693
EP type number : 0 410 896 914
Governor
Governor design. : RQ300/1300AB1249R
Governor no. : 0 420 201 648

Customer-spec. information
Customer : DAF

Engine : DNTD 620

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
Rack travel in mm : 7.50...10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
& maximum rack tra: 21.00
Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 10.80...10.90

Del.quantity cm3/ : 6.4...6.5
100 s: (6.2...6.7)

Spread cm3 : 0.3
100 s: (0.6)

2nd speed rpm : 300.0
Rack travel in mm : 6.3...6.5
Del.quantity cm3/ : 0.7...1.1
100 s: (0.4...1.3)
Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -2
Speed rpm : 800
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 850
Del.quantity : 64.5...65.5
1000 : (62.5...67.5)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version

Setting point:
Speed rpm : 800
Rack travel in mm : 20.0

Testing:
1st rack travel in: 9.30
Speed rpm : 1335...1350

2nd rack travel in: 4.00
Speed rpm : 1400...1430

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.4

Testing:

Speed rpm : 200
Minimum rack trave: 6.80
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 520...560

TORQUE CONTROL

Dimension a mm : 0.35
Torque control curve - 1st version
1st speed rpm : 1290
Rack travel in m: 10.30...10.40
2nd speed rpm : 850
Rack travel in m: 11.20...11.40
3rd speed rpm : 970
Rack travel in m: 10.90...11.10
4th speed rpm : 1050
Rack travel in m: 10.40...10.60
5th speed rpm : 1200
Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1290
Del.quantity cm3/ : 69.0...71.0
1000 s: (66.5...73.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30
Speed rpm : 1535...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...145.0
1000 s: (127.0...148.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50

Del.quantity cm3/ : 7.0...11.0
1000 s: (4.5...13.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 s
Edition : 24.04.91
Replaces : 23.11.90
Test oil : ISO-4113
Combination no. : 0 400 846 582
Injection pump
Pump designation : PES6A95D320RSZ796
EP type number : 0 410 896 901
Governor
Governor design. : RQ300/1300AB1253-2R
Governor no. : 0 420 201 653

Customer-spec. information
Customer : DAF

Engine : NS 156G

1st version kW : 156.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)
Rack travel in mm : 7.50...10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
& maximum rack tra: 21.00
Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.80...12.90

Del.quantity cm3/ : 8.4...8.5

100 s: (8.2...8.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 0.6...1.0

100 s: (0.3...1.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 800

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del.quantity : 84.5...85.5

1000 : (82.5...87.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 800

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.60
Speed rpm : 1330...1340
2nd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 545...585

TORQUE CONTROL

Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 1290
Rack travel in m: 12.60...12.70
2nd speed rpm : 750
Rack travel in m: 14.20...14.80
3rd speed rpm : 960
Rack travel in m: 13.50...14.10
4th speed rpm : 1055
Rack travel in m: 12.90...13.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.80...11.00
2nd pressure hPa : 260
Rack travel in m: 12.30...12.40
3rd pressure hPa : 210
Rack travel in m: 11.30...11.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1290
Del.quantity cm³/ : 87.0...89.0
1000 s: (84.5...91.5)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 44.5...45.5
1000 s: (42.5...47.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.60
Speed rpm : 1330...1340

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 14.90...15.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 6.0...10.0
1000 s: (3.5...12.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 p 7
 Edition : 24.04.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 846 583
 Injection pump
 Pump designation : PES6A95D32ORS2693
 EP type number : 0 410 896 914
 Governor
 Governor design. : RQ300/1300AB1253R
 Governor no. : 0 420 201 649

Customer-spec. information
 Customer : DAF

Engine : NS 156

1st version kW : 156.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 7.50...10.50

NO2

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.00...12.10

Del.quantity cm3/ : 8.7...8.8

100 s: (8.5...9.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm3/ : 0.6...1.0

100 s: (0.3...1.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 1000

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 700

Del.quantity : 87.5...88.5

1000 : (85.5...90.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 1000

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.00

Speed rpm : 1335...1350

2nd rack travel in: 4.00

Speed rpm : 1430...1460

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.4

Testing:

Speed rpm : 100

Minimum rack travel: 7.70

Speed rpm : 300

Rack travel in mm : 6.40...6.50

Rack travel in mm : 2.00

Speed rpm : 540...580

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 1280

Rack travel in m: 12.30...12.40

2nd speed rpm : 1000

Rack travel in m: 12.30...12.50

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 700

Rack travel mm : 12.00...12.10

Measurement

Speed 1/min : 600

1st pressure hPa : -

Rack travel in m: 10.30...10.50

2nd pressure hPa : 290

Rack travel in m: 11.50...11.60

3rd pressure hPa : 250

Rack travel in m: 10.70...10.90

START CUT-OUT

Speed 1/min : 220...240

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600

Del.quantity cm3/ : 53.5...54.5

1000 s: (51.5...56.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

Speed rpm : 1335...1350

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 12.50...12.60

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.30...6.50

Del.quantity cm3/ : 6.0...10.0

1000 s: (3.5...12.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 p 4
 Edition : 24.04.91
 Replaces : 19.3.91
 Test oil : ISO-4113
 Combination no. : 0 400 846 585
 Injection pump
 Pump designation : PES6A95D32ORS2693
 EP type number : 0 410 896 914
 Governor
 Governor design. : RQ300/1300AB1253-1R
 Governor no. : 0 420 201 650

Customer-spec. information
 Customer : DAF

Engine : NS 133

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 7.50...10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 11.50...11.60

Del.quantity cm3/ : 7.6...7.7

100 s: (7.4...7.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm3/ : 0.6...1.0

100 s: (0.3...1.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 800

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 700

Del.quantity : 76.5...77.5

1000 : (74.5...79.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 800

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.50

Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300
Rack travel in mm : 6.4

Testing:

Speed rpm : 100
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 525...565

TORQUE CONTROL

Dimension a mm : 0.55
Torque control curve - 1st version
1st speed rpm : 1290
Rack travel in m: 10.50...10.60
2nd speed rpm : 800
Rack travel in m: 11.80...12.40
3rd speed rpm : 950
Rack travel in m: 11.20...11.80
4th speed rpm : 1050
Rack travel in m: 10.70...11.10

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 11.50...11.60

Measurement

Speed 1/min : 600

1st pressure hPa : -

Rack travel in m: 10.10...10.30

2nd pressure hPa : 160

Rack travel in m: 10.70...10.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 1290

Del.quantity cm3/ : 73.0...75.0
1000 s: (70.5...77.5)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 50.5...51.5
1000 s: (48.5...53.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 12.40...12.50

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 6.0...10.0
1000 s: (3.5...12.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 6,2 p 5
 Edition : 24.04.91
 Replaces : 28.9.90
 Test oil : ISO-4113
 Combination no. : 0 400 846 586
 Injection pump
 Pump designation : PES6A95D32ORS2693
 EP type number : 0 410 896 914
 Governor
 Governor design. : RQ300/1300AB1254R
 Governor no. : 0 420 201 651

Customer-spec. information
 Customer : DAF

Engine : NT 119

1st version kW : 119.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 7.50...10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 10.80...10.90

Del.quantity cm3/ : 6.1...6.2

100 s: (5.9...6.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm3/ : 0.6...1.0

100 s: (0.3...1.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 850

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 61.5...62.5

1000 : (59.5...64.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 850

Rack travel in mm : 20.0

Testing:
1st rack travel in: 9.30
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1410...1440

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.4

Testing:
Speed rpm : 100
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 525...565

TORQUE CONTROL
Dimension a mm : 0.35
Torque control curve - 1st version
1st speed rpm : 1290
Rack travel in m: 10.30...10.40
2nd speed rpm : 850
Rack travel in m: 11.10...11.40
3rd speed rpm : 975
Rack travel in m: 10.70...11.00
4th speed rpm : 1025
Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1290
Del.quantity cm3/ : 68.0...70.0
1000 s: (65.5...72.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.30
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 10.90...11.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 6.0...10.0
1000 s: (3.5...12.5)

Spread cm3 : 3.50
1000 s: (5.50)

Remarks: :

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MMM 2,1 c 1
 Edition : 16.01.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 862 001
 Injection pump
 Pump designation : PES2A90D320/3RS2794
 EP type number : 0 410 892 001
 Governor
 Governor design. : RSV325...1500A2C505-
 2R
 Governor no. : 0 420 233 196

Customer-spec. information
 Customer : MMM

Engine : D226B-2

1st version kW : 30.0
 Rated speed : 3000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.95...3.05
 : (2.90...3.10)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 2

Phasing : 0-90

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...0.00
 & maximum rack tra: 21.00
 Difference ° CS : 3.50...4.50

BASIC SETTING

1st speed rpm : 1500

Rack travel in mm : 11.20...11.30

Del.quantity cm3/ : 9.2...9.3

100 s: (9.0...9.5)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 7.0...7.2

Del.quantity cm3/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm3 : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1500

Del.quantity : 92.0...93.0

1000 : (90.0...95.0)

Spread cm3 : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 105...113

Testing:

1st rack travel in: 10.20
Speed rpm : 1540...1550
2nd rack travel in: 4.00
Speed rpm : 1585...1615
3rd rack travel in: 4.00
Speed rpm : 1605...1635
4th rack travel in: 1770
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 6.6

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 325
Rack travel in mm : 7.00...7.20
Rack travel in mm : 2.00
Speed rpm : 440...500

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1500
Rack travel in m: 11.20...11.30
2nd speed rpm : 500
Rack travel in m: 11.20...11.40

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1540...1550

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 130.0...140.0
1000 s: (127.0...143.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 4,1 k
Edition : 16.01.91
Replaces : 28.9.90
Test oil : ISO-4113

Combination no. : 0 400 864 082

Injection pump
Pump designation : PES4A85B410/3RS2799
EP type number : 0 410 884 944
Governor
Governor design. : RS325/1250AOC2254L
Governor no. : 0 420 220 011

Customer spec. information
Customer : KHD

Engine : BF4L913

1st version kW : 78.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
: (2.45...2.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 11.40...11.50

Del. quantity cm3/ : 8.4...8.5
100 s: (8.2...8.7)

Spread cm3 : 0.3
100 s: (0.5)

2nd speed rpm : 325.0
Rack travel in mm : 7.2...7.4
Del. quantity cm3/ : 1.0...1.6
100 s: (0.8...1.8)
Spread cm3 : 0.2
100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1250
Aneroid pressure h: 700
Del. quantity : 84.5...85.5
1000 : (82.5...87.5)
Spread cm3 : 3.00
1000 : (5.00)

RATED SPEED

1st version
Control lever
position degrees: 81...89

Testing:
1st rack travel in: 10.40
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1355...1385
4th rack travel in: 1450
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: ?
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 6.0

Testing:
Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 325
Rack travel in mm : 5.90...6.10

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 11.40...11.50
2nd speed rpm : 500
Rack travel in m: 11.80...11.90
4th speed rpm : 890
Rack travel in m: 11.60...11.80

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.80...11.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.70...10.80
2nd pressure hPa : 275
Rack travel in m: 11.40...11.50
3rd pressure hPa : 185
Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 800
Del.quantity cm3/ : 83.5...85.5
1000 s: (81.0...88.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 59.0...61.0
1000 s: (57.0...63.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 110.0...120.0
1000 s: (107.0...123.0)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 4,1 k 2
 Edition : 24.04.91
 Replaces : 19.3.91
 Test oil : ISO-4113
 Combination no. : 0 400 864 089
 Injection pump
 Pump designation : PES4A85D410/3RS2799
 EP type number : 0 410 884 944
 Governor
 Governor design. : RSV325...1075A8C2253
 -3L
 Governor no. : 0 420 232 547

Customer-spec. information
 Customer : KHD

Engine : BF4L913

1st version kW : 70.0
 Rated speed : 2150

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1075

Rack travel in mm : 11.90...12.00

Del.quantity cm3/ : 7.9...8.0

100 s: (7.7...8.2)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 8.2...8.4

Del.quantity cm3/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm3 : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1075

Aneroid pressure h: 1000

Del.quantity : 79.5...80.5

1000 : (77.5...82.5)

Spread cm3 : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 95...103

Testing:

1st rack travel in: 10.90

Speed rpm : 1115...1125

2nd rack travel in: 4.00

Speed rpm : 1150...1180

4th rack travel in: 1315
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 8.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 325
Rack travel in mm : 8.20...8.40
Rack travel in mm : 2.00
Speed rpm : 350...410

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1075
Rack travel in m: 11.90...12.00
2nd speed rpm : 500
Rack travel in m: 12.40...12.50
4th speed rpm : 860
Rack travel in m: 12.20...12.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.40...12.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.40...11.50
2nd pressure hPa : 330
Rack travel in m: 12.00...12.10
3rd pressure hPa : 250
Rack travel in m: 11.70...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm³/ : 79.5...81.5
1000 s: (77.0...84.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 57.0...59.0
1000 s: (55.0...61.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1115...1125

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...125.0
1000 s: (112.0...128.0)
Rack travel in mm : 18.00...18.40

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 6,1 r 3
 Edition : 24.04.91
 Replaces : 1.3.91
 Test oil : ISO-4113

Combination no. : 0 400 866 137

Injection pump
 Pump designation : PES6A85D410/3RS2761
 EP type number : 0 410 886 895
 Governor
 Governor design. : RSV325...1400A2C2205
 -1L
 Governor no. : 0 420 232 520

Customer-spec. information
 Customer : KHD

Engine : BF6L913

1st version kW : 118.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.30...12.40

Del.quantity cm3/ : 8.7...8.8
 100 s: (8.5...9.0)

Spread cm3 : 0.3
 100 s: (0.5)

2nd speed rpm : 325.0
 Rack travel in mm : 7.5...7.7
 Del.quantity cm3/ : 0.8...1.4
 100 s: (0.6...1.6)

Spread cm3 : 0.2
 100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 700
 Del.quantity : 87.5...88.5
 1000 : (85.5...90.5)

Spread cm3 : 3.00
 1000 : (5.00)

RATED SPEED

1st version
 Control lever
 position degrees: 97...105

Testing:
 1st rack travel in: 11.30
 Speed rpm : 1290...1300
 2nd rack travel in: 4.00
 Speed rpm : 1345...1375

3rd rack travel in: 4.00
Speed rpm : 1360...1390
4th rack travel in: 1525
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 65...73
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 7.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 325
Rack travel in mm : 7.50...7.70
Rack travel in mm : 2.00
Speed rpm : 440...500

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 12.30...12.40
2nd speed rpm : 750
Rack travel in m: 12.80...12.90
3rd speed rpm : 940
Rack travel in m: 12.50...12.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.50...11.60
2nd pressure hPa : 530
Rack travel in m: 12.60...12.70
3rd pressure hPa : 330
Rack travel in m: 11.70...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm³/ : 88.5...90.5
1000 s: (86.0...93.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 62.5...63.5
1000 s: (60.5...65.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 110.0...120.0
1000 s: (107.0...123.0)
Rack travel in mm : 17.00...17.40

Remarks:

APPLICATION

Wheel loader

Excavator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 p
Edition : 13.05.91
Replaces : 10.4.91
Test oil : ISO-4113

Combination no. : 0 400 866 153

Injection pump
Pump designation : PES6A100D320/3RS2763
EP type number : 0 410 806 006
Governor
Governor design. : RSV400...950AOC2238-1R
Governor no. : 0 420 233 255

Customer-spec. information
Customer : C.D.C.

Engine : 6CT 8.3

1st version kW : 145.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 12.10...12.20

Del.quantity cm3/ : 12.0...12.2

100 s: (11.8...12.4)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 400.0
Rack travel in mm : 4.8...5.0
Del.quantity cm3/ : 1.3...1.7
100 s: (1.1...1.9)
Spread cm3 : 0.6
100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 950
Aneroid pressure h: 900
Del.quantity : 120.5...122.5
1000 : (118.5...124.5)
Spread cm3 : 4.00
1000 : (6.50)

RATED SPEED

1st version
Control lever
position degrees: 36...44

Testing:

1st rack travel in: 11.10
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1065...1075
3rd rack travel in: 4.00
Speed rpm : 1075...1105
4th rack travel in: 1150
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 4.80...5.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.10...12.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.80
2nd pressure hPa : 220
Rack travel in m: 11.10...11.20
3rd pressure hPa : 305
Rack travel in m: 11.50...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 89.5...93.5
1000 s: (87.5...95.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 990...1000

N17

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 4.80...5.00
Del.quantity cm3/ : 13.0...17.0
1000 s: (11.0...19.0)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3917577

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 6,1 w
Edition : 24.04.91
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 866 169

Injection pump
Pump designation : PES6A85D410/3RS2611
EP type number : 0 410 886 902
Governor
Governor design. : RSV325...1250A2C540-3L
Governor no. : 0 420 232 565

Customer-spec. information
Customer : KHD

Engine : F6L913

1st version kW : 89.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
: (2.45...2.65)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.50...10.60

Del.quantity cm³/ : 6.2...6.3

100 s: (6.0...6.5)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 8.7...8.9

Del.quantity cm³/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 62.5...63.5

1000 : (60.5...65.5)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Testing:

1st rack travel in: 9.50

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1350...1380

4th rack travel in: 1525

Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever

position degrees: 70...78

Setting point w/out bumper spring

Speed rpm : 325

Rack travel in mm : 7.0

Testing:

Speed rpm : 100

Minimum rack trave: 19.50

Speed rpm : 325

Rack travel in mm : 6.90...7.10

Rack travel in mm : 2.00

Speed rpm : 410...470

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 10.50...10.60

2nd speed rpm : 500

Rack travel in m: 11.10...11.20

4th speed rpm : 1000

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del.quantity cm³/ : 54.0...56.0

1000 s: (51.5...58.5)

Spread cm³ : 2.50

1000 s: (4.50)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 115.0...125.0

1000 s: (112.0...128.0)

Rack travel in mm : 17.60...18.00

Remarks:

:

APPLICATION

Wheel loader

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a92
 Edition : 13.05.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 170
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100ADC2190
 -52R
 Governor no. : 0 420 233 278
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 CTA 8.3ltr
 1st version kW : 174.5
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

N20

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 12.70...12.80
 Del.quantity cm3/ : 12.7...12.9
 100 s: (12.5...13.1)
 Spread cm3 : 0.4
 100 s: (0.6)
 2nd speed rpm : 400.0
 Rack travel in mm : 5.8...6.0
 Del.quantity cm3/ : 1.7...2.1
 100 s: (1.5...2.3)
 Spread cm3 : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 127.0...129.0
 1000 : (125.0...131.0)
 Spread cm3 : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 39...47

Testing:

1st rack travel in: 11.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1210...1220
3rd rack travel in: 4.00
Speed rpm : 1210...1240
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 155.0...175.0
1000 s: (150.0...180.0)
Rack travel in mm : 16.20...16.40

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 17.0...21.0
1000 s: (15.0...23.0)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3917456

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a93
Edition : 13.05.91
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 866 171

Injection pump
Pump designation : PES6A1000320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV400...1050A0C2190
-54R
Governor no. : 0 420 233 285

Customer-spec. information
Customer : C.D.C

Engine : 6 CT 8.3

1st version kW : 154.4
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

N22

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.40...12.50

Del.quantity cm3/ : 12.5...12.7

100 s: (12.3...12.9)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 1.5...1.9
100 s: (1.3...2.1)

Spread cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 125.5...127.5

1000 : (123.5...129.5)

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 11.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1130...1160
3rd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1275
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 15.5...19.5
1000 s: (13.5...21.5)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3919768

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a94
 Edition : 13.05.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 172
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1250A0C2190
 -55R
 Governor no. : 0 420 233 286

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CTA 8.3

1st version kW : 131.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

N24

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250
 Rack travel in mm : 10.90...11.00
 Del.quantity cm3/ : 10.3...10.5
 100 s: (10.1...10.7)
 Spread cm3 : 0.4
 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.3...5.5
 Del.quantity cm3/ : 1.2...1.6
 100 s: (1.0...1.8)
 Spread cm3 : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Del.quantity : 103.5...105.5
 1000 : (101.5...107.5)
 Spread cm3 : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 51...59

Testing:

1st rack travel in: 9.90
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1360...1390
4th rack travel in: 1450
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.30...5.50

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.30...5.50
Del.quantity cm3/ : 12.5...16.5
1000 s: (10.5...18.5)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

: C.D.C # 3920811

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 3,0 g
Edition : 24.04.91
Replaces : 19.3.90
Test oil : ISO-4113

Combination no. : 0 400 873 038

Injection pump
Pump designation : PES3A80D410RS2790
EP type number : 0 410 883 011
Governor
Governor design. : RSV325...900A7C602-1
Governor no. : 0 420 232 388

Customer-spec. information
Customer : KHD

Engine : F3L912/W

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness : 6.00X2.00X600
x Length mm

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
: (1.85...2.05)

Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 2

Phasing : 0-120-240

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.50...10.60

Del. quantity cm³/ : 5.1...5.2

100 s: (5.0...5.4)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 325.0

Rack travel in mm : 7.6...7.8

Del. quantity cm³/ : 0.7...1.3

100 s: (0.5...1.4)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 51.5...52.5

1000 : (50.0...54.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 99...107

Testing:

1st rack travel in: 9.50

Speed rpm : 940...950

2nd rack travel in: 4.00

Speed rpm : 955...985

LOW IDLE 1

Control Lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 6.0

Testing:
Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 325
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 320...380

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.50...10.60
2nd speed rpm : 500
Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm3/ : 46.5...48.5
1000 s: (44.5...50.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.50
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...135.0
1000 s: (122.0...138.0)
Rack travel in mm : 19.50...21.00

Remarks:

: